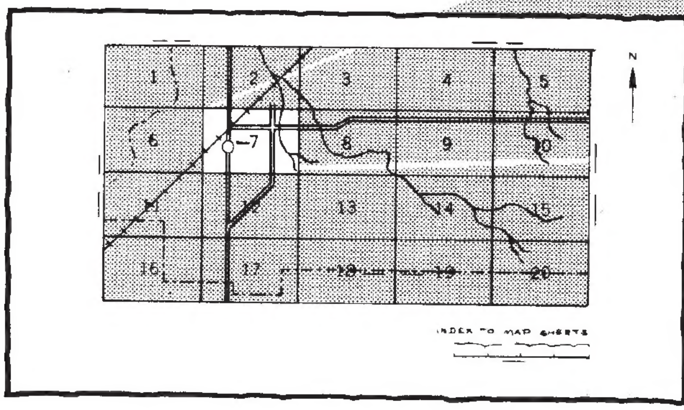
SOIL SURVEY OF

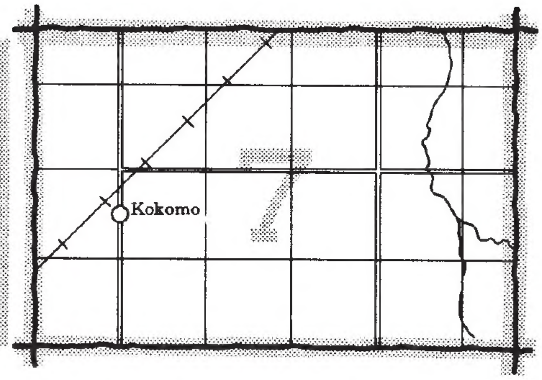
Itawamba County, Mississippi

United States Department of Agriculture
Soil Conservation Service
In cooperation with
Mississippi Agricultural and Forestry Experiment Station

HOW TO USE

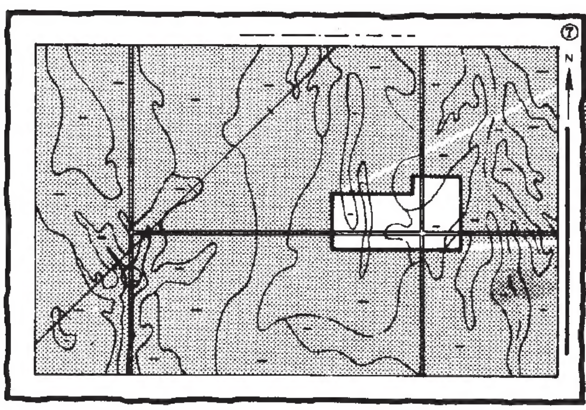
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

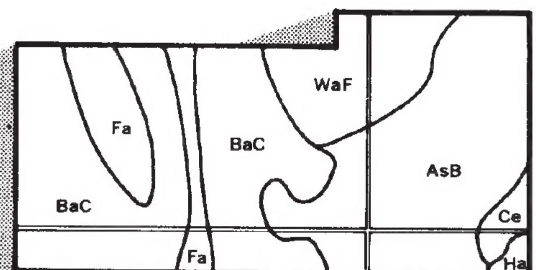




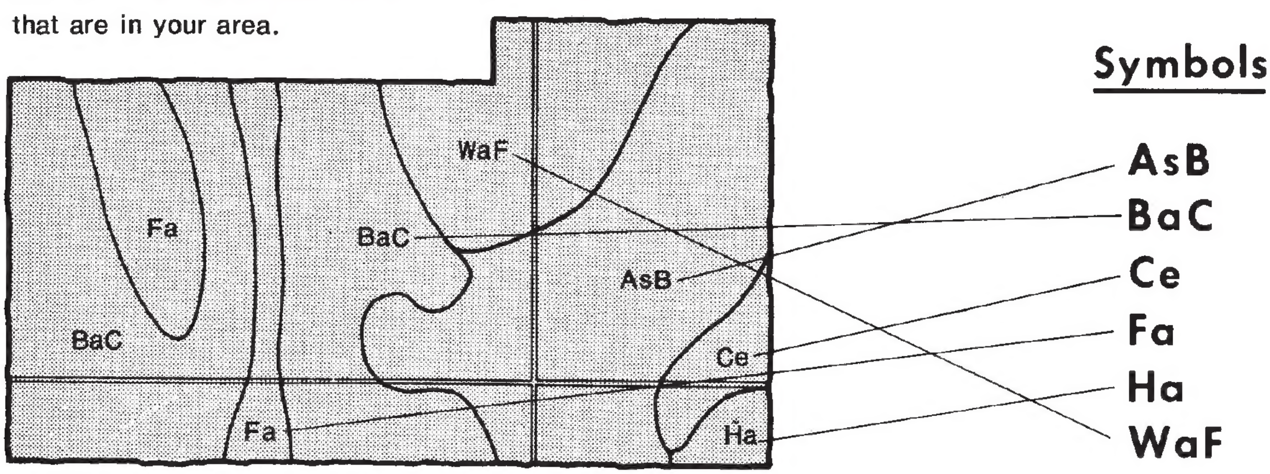
2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.



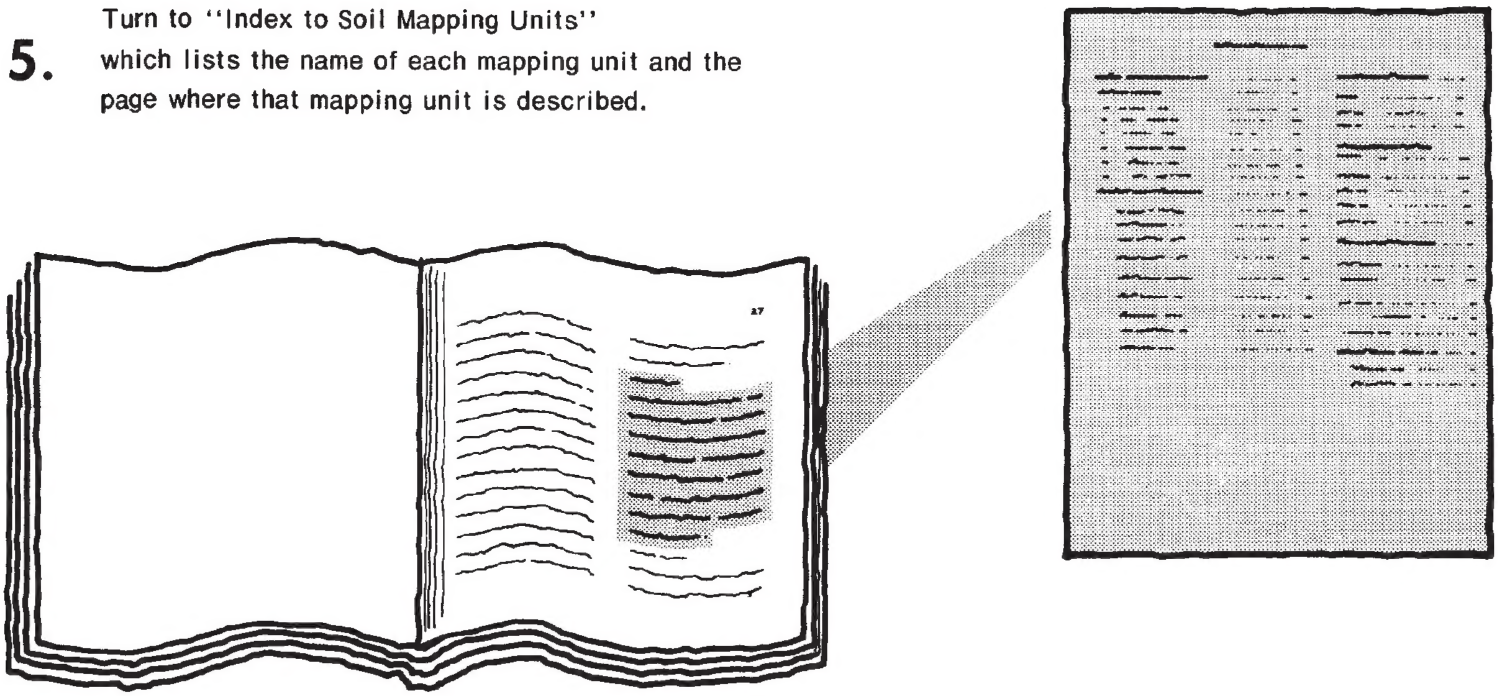


4. List the mapping unit symbols that are in your area.

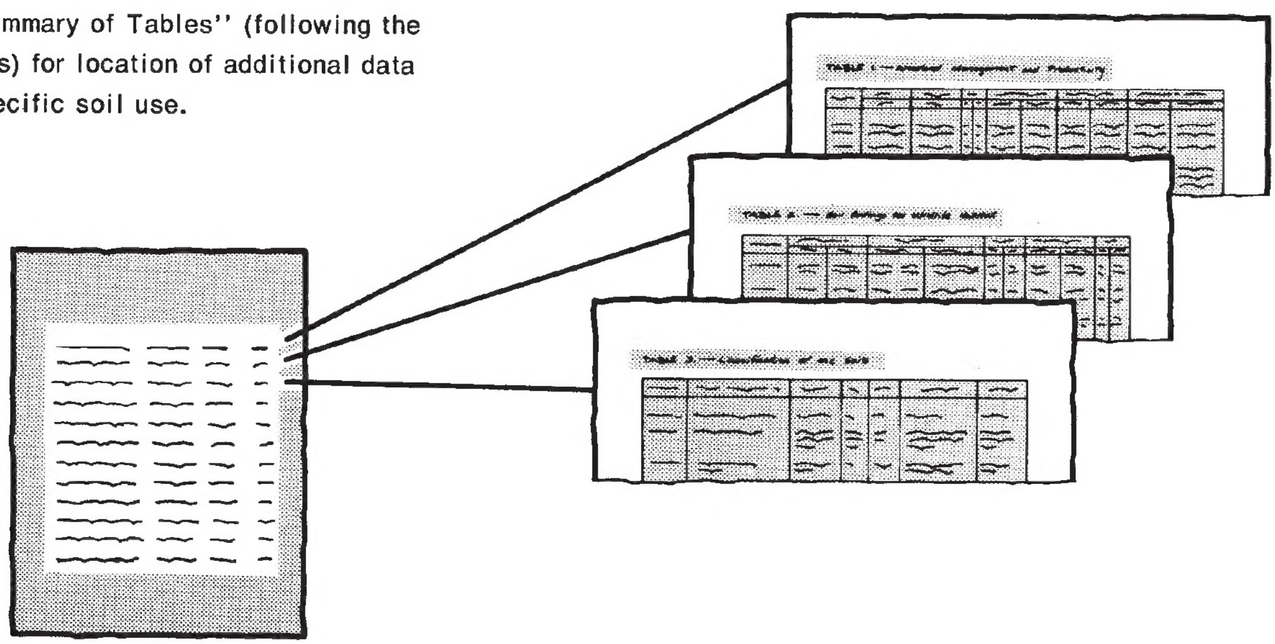


THIS SOIL SURVEY

5. Turn to "Index to Soil Mapping Units" which lists the name of each mapping unit and the page where that mapping unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1959-1975. Soil names and descriptions were approved in 1975. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1975. This survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Itawamba County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: Recreational area on the soils of the Smithdale association, hilly, provides camping sites, cabin sites, and picnic areas. The lake provides fishing, swimming, boating, and water-skiing for lot owners and their guests.

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Issued October 1979

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Foreword

The Soil Survey of Itawamba County, Mississippi contains much information useful in any land-planning program. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey has been prepared for many different users. Farmers, ranchers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

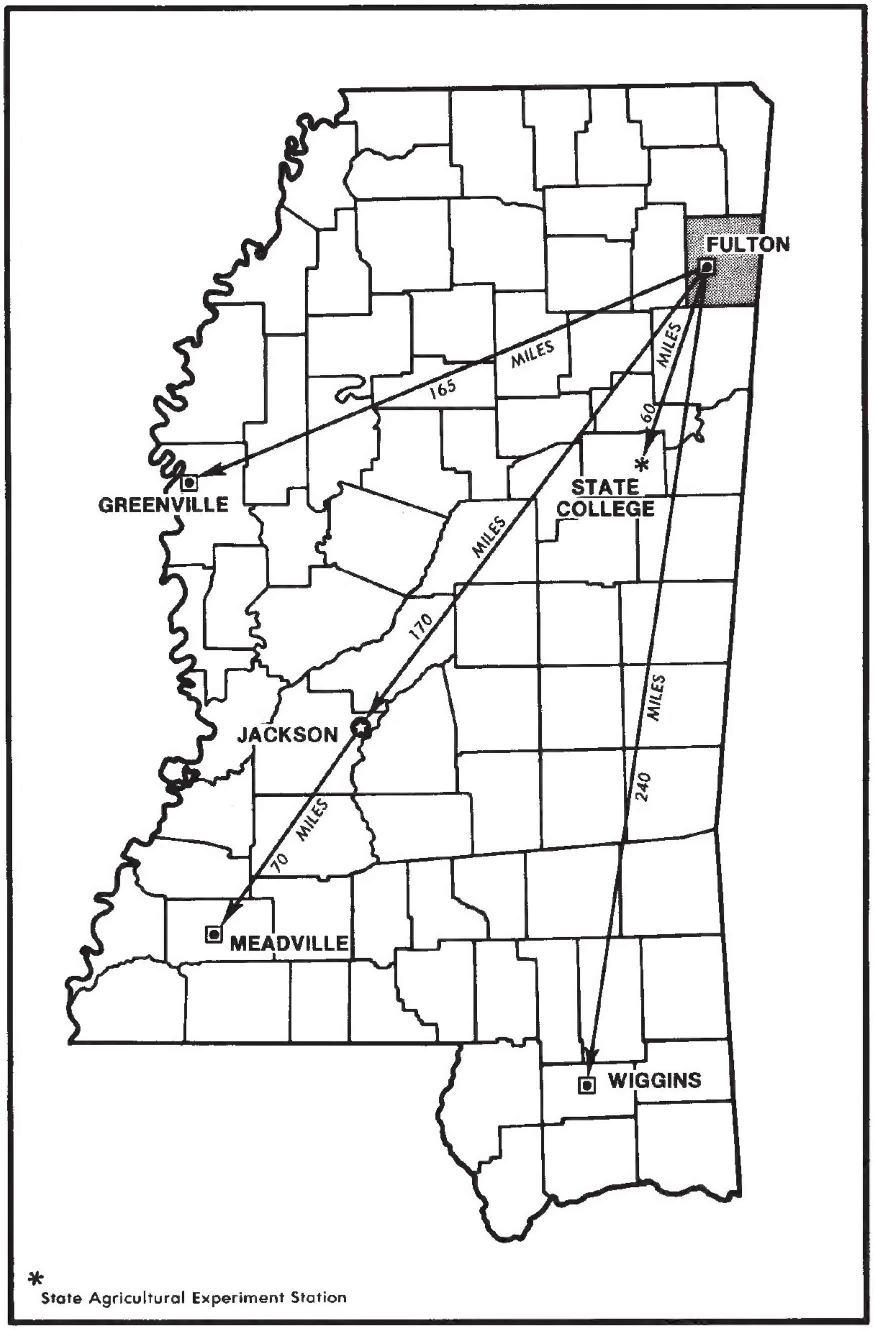
Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.

Chester F. Bellard

Chester F. Bellard
State Conservationist
Soil Conservation Service



Location of Itawamba County in Mississippi.

SOIL SURVEY OF ITAWAMBA COUNTY, MISSISSIPPI

Soils surveyed by L. C. Murphree, Karl H. Miller, and M. C. Garber, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service, in cooperation with Mississippi Agricultural and Forestry Experiment Station

ITAWAMBA COUNTY is approximately 190 miles northeast of Jackson, Mississippi. Fulton is the county seat and principal town. The county has a total area of 346,240 acres or 541 square miles. It is bounded on the north by Prentiss and Tishomingo Counties, on the east by Marion and Franklin Counties, Alabama, on the south by Monroe County, and on the west by Lee County. The county is approximately 26 miles long and 20 miles wide.

General nature of the county

This section briefly describes the development of Itawamba County and gives facts about the industries and the transportation facilities. It also discusses the physiography, relief, drainage, and climate and describes farming in the county. Agricultural statistics used are from the U.S. Bureau of the Census.

Itawamba County was created by act of the legislature on February 9, 1836, from land ceded to the United States by the Chickasaw Indians.

Incorporated towns are Fulton, Mantachie, and Tremont. Several smaller villages are in the county.

The population of the county has declined since World War II. The decrease has been caused mainly by people moving away from farms.

Farming is the main enterprise, but the county also has several industries, among which are garment factories, sawmills, furniture factories, a box factory, and several other smaller plants.

Transportation facilities in the county are good. Bus lines serve the county. Except for a few hundred feet of the Illinois Central across the extreme northeastern corner, the only railroad in Itawamba County is the Mississippian, which extends from Amory in Monroe County to Fulton. The road system consists of a few main highways and a network of local roads. The most prominent of the highways is U.S. Highway 78, also called the Bankhead Highway, which traverses the county from east to west. Mississippi State Highway 25 reaches northeast-southwest from the northeastern corner of the county to Fulton and then turns southeast and south, parallel with the Tombigbee River. Mississippi Highway 23 is a north-south highway in the eastern part of the county. The Natchez Trace Parkway passes through the northwestern corner of the county.

Climate

Itawamba County has a warm, humid climate and abundant rainfall. The months of January, February, and December have average minimum temperatures near freezing. Rains occur throughout the year and are usually heaviest during winter and spring and lightest in fall. Annual precipitation is usually adequate for all crops.

Table 1 shows temperature and precipitation data, for the period 1931 to 1952, recorded at Tupelo, which is in adjoining Lee County. The data are representative of climate in Itawamba County. Tables 2 and 3 show probable dates of the first and last freeze and the length of the growing season.

In winter the average temperature is 45.4 degrees F, and the average daily minimum is 39. The absolute lowest temperature during the period of record was -14 degrees, observed at Tupelo on January 27, 1940. In the summer, the average temperature is 78.4 degrees F, and the average daily maximum is 89.6. The absolute highest temperature was 109 degrees, recorded on July 29, 1930.

Growing degree days, shown in table 1, are equivalent to "heat units." Starting in spring, they accumulate by the amount that the average daily temperature exceeds the base temperature. The normal monthly accumulation is used to schedule single or successive plantings of a crop within the seasonal limits of the last freeze in spring and the first freeze in fall.

As shown in Table 1, the total annual precipitation is about 53.01 inches. Of this total, 28.94 inches, or 55 percent, usually falls during the period March through September, which includes the growing season for most crops. Two years in ten the March-September rainfall is less than 17.10 inches. The wettest month during the period of record was 15.24 inches at Tupelo in January 1949.

Average snowfall is 2.2 inches.

The year-round relative humidity is 60 to 100 percent about 64 percent of the time. The prevailing direction of the wind is from the south-southwest.

During the past 50 years there have been 8 tornadoes in the county, at least 16 damaging thunderstorms, and 7 severe hailstorms.

Physiography, relief, and drainage

Except for a narrow strip along the western boundary, Itawamba County is a part of the Tombigbee River Hills physiographic region of the Gulf Coastal Plain (*20*). The narrow area in the western part of the county is included by the eastern border of the Black Prairie Belt. As indicated by its name, the prominent features of the Tombigbee River Hills are its hills of various shapes and elevations, ranging from rugged to rolling.

The northeastern part of the county is mostly a rugged, stream-dissected, plateaulike area reaching an elevation of 500 to 600 feet or more above mean sea level and showing a maximum relief of at least 200 feet. Here are the steepest slopes, the narrowest valleys, and narrowest ridgecrests. The greatest elevations are some distance west of the eastern boundary of the county.

Westwards and southwestwards the surface as a whole descends gradually and irregularly towards the Tombigbee River, which has cut a wide flat-bottomed valley from north to south across the county. West of the river valley the surface rises more or less abruptly, but not to so great a height as that on the east. In fact, much of the territory west of the river is rolling, especially the southern part.

As a whole, the topography is in an early maturity state of development.

The greatest elevation may be as much as 550 to 600 feet, and the least, on the Tombigbee where it is crossed by the southern boundary of the county, is about 200 feet at low water. The maximum relief of the county as a whole is 350 to 400 feet.

The county is cut into two parts by the Tombigbee River. The eastern part is crossed by Bull Mountain Creek, and both eastern and western parts are notched by smaller streams.

The hill country includes both elevations and depressions. The depressions are the valleys along which flats and terraces have been developed from the mouths well up toward the sources. The flood plains of the Tombigbee River and Bull Mountain Creek are the most prominent lowlands, but some smaller stream plains are noticeable. Those of Chubby, Gum, Twenty Mile, Mantachie, and Long Creeks are examples. Terraces, or second and third bottoms, are conspicuous in places, as along Tombigbee River and Bull Mountain Creek and particularly southwest of Oakland between Gum and Cypress Creeks.

Itawamba County is in the extreme northern part of the Tombigbee River drainage basin. The Tombigbee River crosses the county from north to south, west of the central meridian, in a channel which is very crooked in detail. It is more properly known as the East Fork of the Tombigbee River, a name applied above the mouth of Old Town Creek, which is the West Fork of the Tombigbee River. The East Fork is formed by the confluence of Mackys Creek and Browns Creek about 2.5 miles south of the Prentiss-Itawamba County line.

Numerous tributaries feed the Tombigbee, of which the chief are Bull Mountain Creek, Reeds Creek, Cummings Creek, and Mud Creek from the northeast and Donovan, Twenty Mile, Mantachie, and Long Creeks from the northwest. Bull Mountain Creek, the largest of these streams, rises in Alabama, flows southwest in a somewhat sinuous course, and enters the Tombigbee less than a mile north of the southern boundary of Itawamba County. Its largest tributaries are Gum, Cypress, Johns, and Jims Creeks. The west tributaries of the Tombigbee are Browns, Donovan, Twenty Mile, Mantachie, and Long Creeks and have been canalized.

The overall drainage pattern is dendritic, as is commonly the case with drainage courses in relatively homogeneous and horizontal or gently dipping beds. In Itawamba County, however, the dendritic pattern seems to be of the Lombardy poplar type, that is, the tributaries not only enter the main at a low angle, but through the greater part of their courses they flow at a low angle to their main.

Springs of small to moderate yields are numerous. Most of the larger water courses have perennial streams, fed by springs in part.

Farming

Farming is the main source of income in this county. The main crops harvested are soybeans, cotton, corn, and small grain. Crops were harvested from 28,099 acres in 1959 and from 25,790 acres in 1969. Livestock are raised on many farms. In 1964 the raising of livestock was the main source of income on 121 farms. Cotton was the main source of income on 64 farms and grain on 42 farms.

The trend in the last few years has been an increase in the number of livestock raised and in the amount of timber products harvested. The number of farms has decreased, and size of farms has increased from 122 acres in 1959 to 133 acres in 1969. These trends are reflected in changes in uses of the land; in the principal crops grown; and in size, number, and type of farms. In 1969, 1,094 farms were in the county compared with 1,772 in 1959. In 1969, 145,467 acres was in farms compared with 118,235 acres in 1959.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had

never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of rangeland and woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The soils in the survey area vary widely in their potential for major land uses. Table 4 shows the extent of the map units shown on the general soil map and gives general ratings of the potential of each, in relation to the other map units, for major land uses. Soil properties that pose limitations to the use are indicated. The ratings of soil potential are based on the assumption that practices in common use in the survey area are being used to overcome soil limitations. These ratings reflect the ease of overcoming the soil limitations and the probability of soil problems persisting after such practices are used.

Each map unit is rated for *cultivated farm crops, pasture and hay, woodland, urban uses,* and *extensive recreation areas.* Cultivated farm crops are those grown extensively by farmers in the survey area. Pasture and hay refers to land producing tame grasses, legumes, or native pasture that is generally used for livestock grazing or the production of hay. Woodland refers to land that is producing either trees native to the area or introduced species. Urban uses include residential, commercial, and industrial developments. Extensive recreation areas include those used for nature study and as wilderness.

Areas dominated by nearly level soils subject to flooding

Five map units in the county are made up of nearly level soils that are subject to flooding.

1. Jena-Kirkville-Mantachie

Well drained, moderately well drained, and somewhat poorly drained, loamy soils on flood plains

These nearly level soils are on the flood plains of Bull Mountain Creek and its tributaries in the eastern part of the county.

This map unit occupies about 5 percent of the county. About 32 percent of the unit is Jena soils, 30 percent is Kirkville soils, 25 percent is Mantachie soils, and the remaining 13 percent is minor soils.

The Jena soils are near the old stream channels on the higher lying natural levees. The Kirkville soils are in intermediate positions in slightly lower areas. Mantachie soils are in the lower lying areas away from the old stream channels.

The Jena and Kirkville soils have a loam and sandy loam surface layer and subsoil. The Kirkville soils are not so well drained as the Jena soils and have grayish mottles caused by wetness within a depth of two feet. Mantachie soils have a loam surface layer and subsoil. They are wetter and have dominantly grayish colors within a depth of 20 inches.

The minor soils are the somewhat poorly drained Mathiston soils and poorly drained, loamy soils.

About 90 percent of this map unit is used for woodland. Most of the soils are frequently flooded, and they lack adequate drainage systems for more intensive use. The upper part of some of the smaller tributaries is cleared and is used for growing crops and pasture.

This map unit has a very high potential for woodland. Cherrybark oak, yellow-poplar, green ash, and loblolly pine are suitable species. Equipment operations are usually restricted in winter and spring because of flooding and wetness. If these soils are protected from flooding, they have a high potential for cultivated crops and pasture. At present, the potential is low.

This map unit has low potential for residential, industrial, and commercial use because of flooding. Also, the seasonal high water table in the Kirkville and Mantachie soils limits their use. Potential for woodland wildlife habitat is good. Limitations for recreational use, other than hunting and fishing, are severe.

2. Kirkville-Mantachie-Mooreville

Moderately well drained and somewhat poorly drained, loamy soils on flood plains

These nearly level soils are on the flood plains of the Tombigbee River.

This map unit occupies about 6 percent of the county. About 31 percent of the unit is Kirkville soils, 30 percent is Mantachie soils, 10 percent is Mooreville soils, and the remaining 29 percent is minor soils.

The Kirkville soils are along stream levees. The Mantachie and Mooreville soils are on the low lying areas away from the old stream channels.

The Kirkville soils have a sandy loam surface layer and a loam or silt loam subsoil. They have gray mottles because of wetness within 24 inches of the surface. Mantachie soils have a loam surface layer and subsoil. They have dominantly grayish colors within a depth of 20 inches. Mooreville soils have a loam surface layer and a clay loam subsoil with gray mottles caused by wetness within a depth of 24 inches.

The minor soils are the well drained Jena soils and somewhat poorly drained Mathiston soils; poorly drained, loamy soils; and somewhat poorly drained, clayey soils.

About 90 percent of this map unit is used for woodland. These soils are frequently flooded, and they lack adequate drainage systems for more intensive use. Some areas have been cleared and are used for pasture.

The map unit has a very high potential for woodland. Cherrybark oak, green ash, yellow-poplar, and loblolly pine are suitable species. Equipment operations are usually restricted in winter and spring because of flooding and wetness. If these soils are protected from flooding, they have a high potential for cultivated crops and pasture. At present the potential is low.

This map unit has low potential for residential, industrial, and commercial use because of flooding. Also, the seasonal high water table in these soils limits their use. Potential for woodland wildlife habitat is good. Limitations for recreational use, other than hunting and fishing, are severe.

3. Leeper-Marietta

Somewhat poorly drained and moderately well drained, clayey and loamy soils on flood plains

These nearly level soils are on the flood plains of Twenty Mile Creek, in the northwestern part of the county.

This map unit occupies about 1 percent of the county. About 70 percent of the unit is Leeper soils, 25 percent is Marietta soils, and the remaining 5 percent is minor soils.

The Leeper soils are near the old stream channels on the higher lying natural levees. The Marietta soils are along the old stream channels and along some of the larger tributaries.

The Leeper soils have a clayey surface layer and subsoil. They have dominantly grayish colors caused by wetness within a depth of 20 inches. The Marietta soils have a loam surface layer and a mottled loam or clay loam subsoil that has grayish mottles caused by wetness within a depth of 24 inches.

The minor soils are the somewhat poorly drained Mantachie soils and poorly drained, loamy soils.

About 80 percent of this map unit is used for cropland and pasture. Occasional flooding is a concern of management. When protected from flooding these soils have a high potential for cultivated crops and pasture.

This map unit has a very high potential for woodland. Cottonwood, green ash, sweetgum, and sycamore are suitable species. Equipment operations are restricted somewhat during the winter months because of wetness and flooding. This map unit has a low potential for residential, industrial, and commercial use because of flooding, wetness, and the high shrink-swell potential. Potential for openland wildlife habitat is good and for woodland wildlife habitat is fair. Limitations for recreational use are severe.

4. Mantachie

Somewhat poorly drained, loamy soils on flood plains

These nearly level soils are on the flood plains of Mantachie and Donovan Creeks in the western part of the county.

This map unit occupies about 6 percent of the county. About 95 percent is Mantachie soils, and 5 percent is minor soils.

The Mantachie soils are throughout the flood plain. These soils have a loam surface layer and subsoil. They have grayish colors caused by wetness within a depth of 20 inches.

The minor soils are the somewhat poorly drained Mathiston soils and poorly drained, loamy soils.

About 90 percent of this map unit is in crops and pasture. There is a problem of flooding during periods of high rainfall; however, the areas usually flood occasionally during winter and early in spring.

This map unit has a high potential for row crops and pasture.

This map unit has a very high potential for woodland. Green ash, yellow-poplar, and loblolly pine are suitable species. Equipment operations are usually restricted in winter and spring because of flooding and wetness.

This map unit has low potential for residential, industrial, and commercial use because of occasional flooding, wetness of the soil, and a seasonal high water table. Potential for openland and woodland wildlife habitat is good. Limitations for recreational uses are severe.

5. Mantachie-Marietta

Somewhat poorly drained and moderately well drained, loamy soils on flood plains

These nearly level soils are on the flood plains of Bogue Fala in the southwestern part of the county.

This map unit occupies about 2 percent of the county. About 70 percent is Mantachie soils, 20 percent is Marietta soils, and the remaining 10 percent is minor soils.

The Mantachie soils are near the old stream channel on the higher lying natural levees in the southern part of the map unit. The Marietta soils are in the wide flood plains just east of the Lee County line.

The Mantachie soils have a loam surface layer and subsoil. They have dominantly grayish colors caused by wetness within a depth of 20 inches.

The Marietta soils have a loam or silt loam surface layer. The subsoil is clay loam, sandy clay loam, or loam. Grayish mottles caused by wetness are within a depth of 24 inches.

The minor soils are the somewhat poorly drained Mathiston and Leeper soils and poorly drained, loamy soils.

About 90 percent of this map unit is used for crops or pasture. The seasonal high water table and occasional flooding are concerns of management. This map unit has a high potential for row crops and pasture.

This map unit has a very high potential for woodland. Green ash, yellow-poplar, and loblolly pine are suitable species. Equipment operations are usually restricted in winter and spring because of wetness and the high water table of the soils. This map unit has low potential for residential, industrial, and commercial uses because of occasional flooding, the wetness of the soil, and the seasonal high water table. Potential for openland and woodland wildlife habitat is good. Limitations for recreational use are severe.

Areas dominated by nearly level to strongly sloping, upland soils

Two map units in the county are made up of soils on nearly level to sloping uplands and low terraces.

6. Ora-Kipling-Sumter

Moderately well drained, loamy soils that have a fragipan; somewhat poorly drained, acid, clayey soils; and well drained, calcareous, clayey soils

This map unit is on uplands in the western part of the county. It is on broad, gently sloping ridgetops and long, strongly sloping side slopes.

This map unit occupies about 2 percent of the county. About 60 percent of this unit is Ora soils, 34 percent is Kipling soils, 3 percent is Sumter soils, and the remaining 3 percent is minor soils.

The moderately well drained Ora and Kipling soils are on the ridgetops and side slopes. The well drained Sumter soils are on side slopes. The Ora soils have an acid, loam and fine sandy loam surface layer, and have loam to sandy clay loam in the upper part of the subsoil overlying a fragipan. The Kipling soils have an acid, silty clay loam surface layer and a clay subsoil over a marly clay substratum. Sumter soils have a calcareous, silty clay surface layer and subsoil over chalk at a depth of about 33 inches.

The minor soils are well drained Luverne soils and moderately well drained Savannah soils.

About 70 percent of this map unit is used for pasture and cultivated crops. There is a medium potential for cultivated crops on Ora soils and low potential for cultivated crops on Kipling and Sumter soils. The potential for pasture and hay is medium on all the soils. Soil erosion and slope are the main limitations for pasture, hay, and row crops. In addition, the clayey textures of Kipling and Sumter soils are management concerns.

The potential for woodland is high on the Kipling soils, moderately high on the Ora soils, and low on the calcareous Sumter soils. The clayey textures and soil reaction are the main limitations to use for woodland. Eastern redcedar is the only species suitable for the Sumter soils.

The Ora soils have medium potential for residential, industrial, and commercial uses because of low strength and slow percolation. The Kipling and Sumter soils have a low potential for residential, industrial, and commercial uses. High shrink-swell potential, slow percolation, and low strength are the main limitations. The shrink-swell potential and low strength can be partially overcome by using special foundations for buildings.

The potential for openland and woodland wildlife habitat is fair to good. Limitations for recreational use are moderate.

7. Ora-Savannah-Pheba

Moderately well drained and somewhat poorly drained, loamy soils that have a fragipan

These soils are nearly level to strongly sloping. They have a fragipan that restricts roots and the movement of water through the soil.

This map unit is on uplands and terraces in the western part of the county. It occupies about 11 percent of the county. About 40 percent is Ora soils, 35 percent is Savannah soils, 5 percent is Pheba soils, and the remaining 20 percent is minor soils.

The moderately well drained Savannah and Ora soils are on the broad ridgetops, and the Ora soils are also on the side slopes. These soils have a loam and fine sandy loam surface layer and loam to sandy clay loam in the upper part of the subsoil overlying a fragipan. The somewhat poorly drained Pheba soils are in nearly level to slightly concave positions on the ridgetops. They have a silt loam surface layer and silt loam in the upper part of the subsoil overlying a fragipan.

The minor soils are the well drained Smithdale soils, the somewhat poorly drained Harleston soils, and the poorly drained Trebloc soils.

Most of this map unit is used for cultivated crops and pasture. It has a high potential for these uses. Protection from erosion for the sloping soils and removal of excess surface water from the Pheba soils are the principal needs. This map unit has a high potential for woodland. There are no significant limitations. The potential for residential, industrial, or commercial uses is medium because of low strength and slow percolation. The potential for openland and woodland wildlife habitat is good. Limitations for recreational use are slight to moderate.

Areas dominated by hilly, upland soils

Three map units in the county are made up of soils on sloping ridgetops and hilly dissected side slopes.

8. Smithdale

Well drained, loamy soils on ridges and steep side slopes

This map unit occurs on uplands in the central part of the county. It occupies about 29 percent of the county. About 70 percent is Smithdale soils, and the remaining 30 percent is minor soils.

The well drained, sloping to steep Smithdale soils are on narrow ridgetops and side slopes. These soils have a fine sandy loam surface layer, loam to sandy clay loam in the upper part of the subsoil, and sandy loam in the lower part of the subsoil.

The minor soils are the moderately well drained Ora and Savannah soils, the well drained Jena soils, and the somewhat poorly drained Mantachie soils.

About 85 percent of this map unit is used for woodland. Because of the steepness of this map unit, most of it is not suitable for row crops or pasture. It has a low potential for these uses.

This map unit has a moderately high potential for woodland. There are no significant limitations. The potential for residential, industrial, or commercial uses is low because of the steep slopes. The potential for woodland wildlife habitat is good. Limitations for recreational uses are severe because of slope.

9. Smithdale-Lexington

Well drained, loamy soils on broad ridges and steep side slopes

This map unit is on uplands in the central part of the county. It occupies 8 percent of the county. About 75 percent is Smithdale soils, 15 percent is Lexington soils, and the remaining 10 percent is minor soils.

The Smithdale soils are on the side slopes. The Lexington soils are on the broad ridges. The Smithdale soils have a fine sandy loam surface layer, loam to sandy clay loam in the upper part of the subsoil, and sandy loam in the lower part of the subsoil. The Lexington soils have a silt loam surface layer underlain by silty clay loam in the upper part of the subsoil. The lower part of the subsoil is sandy clay loam or sandy loam.

The minor soils are the moderately well drained Ora soils and the somewhat poorly drained Mantachie soils.

About 50 percent of this map unit is used for cultivated row crops and pasture. It has a high potential for these uses on the broad ridges. The potential is low on the steep side slopes.

Protection from erosion for the sloping soils is the principal need. This map unit has a moderately high potential for woodland. There are no significant limitations. The potential for residential, industrial, or commercial uses is low because of the steep slopes of the Smithdale soils, but the Lexington soils have a high potential. The potential for openland and woodland wildlife habitat is good. Limitations for recreational use are slight to moderate.

10. Smithdale-Luverne

Well drained soils that have a loamy or clayey subsoil and are on narrow ridgetops and steep side slopes

This map unit is in the southern and southeastern parts of the county. The soils are sloping to steep.

This map unit occupies about 30 percent of the county. About 45 percent is Smithdale soils, 38 percent is Luverne soils, and the remaining 17 percent is minor soils.

The Smithdale soils are on ridgetops and upper side slopes. They have a fine sandy loam surface layer and a sandy clay loam and sandy loam subsoil. Luverne soils have a fine sandy loam surface layer and a clay to clay loam subsoil over stratified materials.

The minor soils are the moderately well drained Ora soils on ridgetops and the well drained Saffell soils on

steep side slopes. The somewhat poorly drained Mantachie soils and the well drained Jena soils are on flood plains.

Most of this map unit is used for woodland. It has moderately high potential for this use. It has low potential for row crops and pasture because of slopes. The potential for residential, industrial, or commercial uses is low because of steep slopes. The potential for woodland wildlife habitat is good. Limitations for recreational uses are moderate to severe because of slopes.

Broad land use considerations

Approximately 14 percent of the land area in Itawamba County is used for cultivated crops. Several soils have a high potential for farming. These soils are identified as map units 3, 4, 5, and 7 on the general soil map at the back of this publication. Map units 3, 4, and 5 are occasionally flooded, and slight crop damage results. Wetness is the major limitation for growing crops. The major soils of these map units are the Leeper, Mantachie, and Marietta soils. Wetness is the major limitation for map unit 7, although this unit is not subject to flooding. In this map unit are the Ora, Pheba, and Savannah soils.

About 8 percent of the land in Itawamba County is in pasture. Map units 3, 4, 5, and 7 have a high potential for growing pasture and hay. The dominant soils of these map units are the Leeper, Mantachie, Marietta, Ora, Pheba, and Savannah soils.

Most soils of the county have moderately high to very high potential for woodland. Exceptions are the Sumter soils. Sumter soils are alkaline and have a low potential for woodland.

About 14,700 acres of Itawamba County is urban or built-up areas (*9*). In general, soils with highest potential for urban uses are the nearly level to gently sloping soils in the Ora-Savannah-Pheba map unit and the Smithdale-Lexington map unit. These are identified on the general soil map as map units 7 and 9. Low strength and slope are the main limitations. Most of these soils perc slowly, which is a limitation for septic tank absorption fields. With proper drainage, grading, and careful design, most of these limitations can be overcome.

Most of the soils have medium to low potential for recreational uses. Map units 1, 2, 3, 4, and 5 are on flood plains, and flooding is a limitation. Map units 8 and 10 are hilly, and slope limits their use as intense recreational areas. Such activities as hunting, hiking, and horseback riding, however, are suitable uses. Potentials for wildlife habitat are discussed in the section, "Use and management of the soils."

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have a similar profile make up a *soil series.* Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Ora fine sandy loam, 2 to 5 percent slopes, eroded, is one of several phases within the Ora series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called soil complexes, soil associations, and undifferentiated groups.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. No soil complexes were mapped in this survey area.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Jena-Kirkville association is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because there is little value in separating them. The pattern and proportion of the soils are not uniform.

An area shown on the map has at least one of the dominant (named) soils or may have all of them. Kirkville, Mantachie and Mooreville soils is an undifferentiated group in this survey area.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

Most mapped areas include places that have little or no soil material and support little or no vegetation. Such places are called *miscellaneous areas*; they are delineated on the soil map and given descriptive names. Pits is an example. Some of these areas are too small to be delineated and are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 5, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

Ha—Harleston fine sandy loam. This nearly level, moderately well drained soil is in areas adjacent to flood plains and on uplands. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown fine sandy loam about 9 inches thick. The upper part of the subsoil is yellowish brown loam or sandy loam with mottles of strong brown and light brownish gray to a depth of about 48 inches. The lower part of the subsoil is mottled, light gray and yellowish brown loam and sandy loam to a depth of 70 inches.

Included with this soil in mapping are small areas of Mantachie, Savannah, and Trebloc soils. Also included is a small acreage of Harleston soils that are occasionally flooded.

This soil is strongly acid to extremely acid. Permeability is moderate. The available water capacity is medium. Runoff is slow, and the erosion hazard is slight. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions.

Most of this soil is used for row crops and pasture. Corn, soybeans, small grains, and pasture plants are suited to the soil. This soil has high potential for growing row crops, hay, and pasture. High crop growth can be obtained when the soil is well managed. Drainage ditches are needed to remove surface water. Crop residue should be shredded and left on the surface as a mulch.

This soil has high potential for growing loblolly pine. It has moderate equipment limitations because of soil wetness.

This soil has low potential for urban uses because of wetness. Capability unit IIw-1.

Je—Jena loam. This is a well drained soil. It is on flood plains.

Typically, the surface layer is dark brown loam about 7 inches thick. The subsoil to a depth of 30 inches is brown and yellowish brown silt loam and loam. The underlying layer to a depth of 55 inches is pale brown sandy loam with yellowish brown mottles.

Included with this soil in mapping are small areas of Mantachie, Kirkville, Marietta, and Mooreville soils.

This soil is strongly acid or very strongly acid. Water moves through it at a moderate rate. Runoff is medium. This soil is occasionally flooded during winter unless it is protected. The available water capacity is high. Tilth is good, and the soil can be worked through a fairly wide range of moisture conditions.

Most of this soil is in row crops or pasture. It is suited to cotton, corn, soybeans, pasture plants, pine timber, and adapted hardwoods. It has high potential for growing row crops, hay, and pasture.

Proper arrangement of crop rows helps remove excess water. Return of crop residue to the soil helps maintain tilth.

This soil has very high potential for growing loblolly pine and sweetgum. It has moderate plant competition.

This soil has a low potential for most urban uses because of flooding, which is a severe hazard. Capability unit IIw-5.

JK—Jena-Kirkville association. This association consists of moderately well drained and well drained soils on the flood plains along Bull Mountain Creek. This unit is chiefly forested. Old sloughs meander through the areas. Slopes are 0 to 2 percent.

The composition of this unit is more variable than most of the units in the county. Mapping has been controlled well enough, however, to interpret for the expected use of the soils.

The Jena soils are along the higher stream levees. The Kirkville soils occupy the lower areas. These soils are subject to frequent flooding. The mapped areas are elongated. They range to as much as one mile in width and to several thousand acres in size.

The pattern and extent of the soils are fairly uniform throughout the survey area. Each mapped area contains both soils of this association and one or more minor soils.

The dominant soils make up about 72 percent of the association. Jena soils make up about 42 percent, and Kirkville soils and soils similar to Kirkville soils make up about 30 percent.

The well drained Jena soils typically have a surface layer of dark brown loam about 7 inches thick. The subsoil to a depth of 30 inches is brown and yellowish brown silt loam. The underlying layer to a depth of 55 inches is pale brown sandy loam and has yellowish brown mottles. Permeability is moderate, and available water capacity is high. Reaction is strongly acid or very strongly acid.

The moderately well drained Kirkville soils have a surface layer of brown sandy loam about 4 inches thick. The subsoil to a depth of 24 inches is yellowish brown silt loam with light brownish gray mottles. Below this layer to a depth of 60 inches is gray loam that has yellowish

brown mottles. These soils are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium.

Included with these soils in mapping are areas of the moderately well drained Mooreville soils and the somewhat poorly drained Mantachie and Mathiston soils.

Most of this association is in hardwood forest. It has very high potential for growing timber. Use of equipment is restricted during wet seasons and periods of flooding. Plant competition and seedling mortality are moderate.

Frequent flooding is the main limitation to use of these soils for farming and for nonfarm uses (fig. 1). If these soils are adequately protected from flooding, they have high potential for row crops and pasture.

Because of soil wetness and flooding the potential for urban uses is low. The potential for woodland wildlife habitat is good and potential for wetland wildlife habitat is fair. Capability unit Vw-1.

KpB2—Kipling silty clay loam, 2 to 5 percent slopes, eroded. This is a somewhat poorly drained soil. It is on narrow ridgetops and side slopes on the uplands.

Typically, the surface layer is dark grayish brown silty clay loam about 3 inches thick. The subsoil is mottled yellowish red, yellowish brown, red, and light brownish gray clay to a depth of 51 inches. The underlying layer is light brownish gray marly clay and has mottles of yellowish brown to a depth of about 60 inches.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Ora and Savannah soils.

This soil is medium acid to extremely acid in the upper part of the profile and medium acid to moderately alkaline in the lower part. Permeability is very slow. The available water capacity is high. Runoff is medium. When the soil is cultivated the erosion hazard is moderate. Tilth is fair. This soil shrinks when dry and swells when wet.

Most of this soil is used for row crops and pasture. A small acreage is wooded. Cotton, soybeans, pasture plants, and pine trees are suited to the soil. Soil erosion is a hazard on cropland but can be controlled by the use of crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce erosion.

This soil has high potential for growing loblolly pine. The clayey subsoil and moderate equipment limitations are hazards for woodland use and management.

This soil has low potential for most urban uses. The clayey subsoil has a slow percolation rate which is a limitation for septic tank absorption fields. The high shrink-swell potential and low strength are severe limitations for buildings. Capability unit IIIe-1.

KpC2—Kipling silty clay loam, 5 to 8 percent slopes, eroded. This is a somewhat poorly drained soil. It is on narrow ridgetops and side slopes on the uplands.

Typically, the surface layer is dark grayish brown silty clay loam about 3 inches thick. The subsoil is mottled yellowish red, yellowish brown, red, and light brownish gray clay to a depth of 51 inches. The underlying layer is light brownish gray marly clay and has mottles of yellowish brown to a depth of about 60 inches.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Sumter and Luverne soils.

This soil is medium acid to extremely acid in the upper part of the profile and medium acid to moderately alkaline in the lower part. Permeability is very slow. The available water capacity is high. Runoff is medium, and when the soil is cultivated the hazard of erosion is moderate. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions. This soil shrinks and cracks when dry and swells when wet.

Most of this soil is used for row crops and pasture. The remaining part is wooded. Cotton, soybeans, small grains, pasture plants, and pine trees are suited to the soil. Soil erosion is a hazard on cropland, but can be controlled by the use of minimum tillage, crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce erosion.

This soil has high potential for growing loblolly pine (fig. 2). The clayey subsoil and moderate equipment limitations are hazards for woodland use and management.

This soil has low potential for most urban uses. The clayey subsoil has slow percolation which is a limitation for septic tank absorption fields. The high shrink-swell potential and low strength are severe limitations for buildings. Capability unit IVe-1.

KpD2—Kipling silty clay loam, 8 to 12 percent slopes, eroded. This is a somewhat poorly drained soil on narrow ridgetops and side slopes on the uplands.

Typically, the surface layer is dark grayish brown silty clay loam about 3 inches thick. The subsoil is mottled yellowish red, yellowish brown, red, and light brownish gray clay to a depth of 51 inches. The underlying layer is light brownish gray marly clay and has mottles of yellowish brown to a depth of about 60 inches.

The surface layer has been thinned by erosion and generally is mixed with the more clayey subsoil. Rills and a few gullies are common in most fields. There are a few gullies that are not crossable by tillage implements. Included with this soil in mapping are small areas of Luverne, Ora, and Smithdale soils.

This soil is medium acid to extremely acid in the upper part of the profile and medium acid to moderately alkaline in the lower part. Permeability is very slow. The available water capacity is high. Runoff is medium.

Because of slope and the erosion hazard, this soil should be in permanent vegetation. Most of this soil is wooded and in pasture. This soil has a fair potential for growing bahiagrass and improved bermudagrass. It has low potential for growing row crops because of slope and the erosion hazard.

This soil has high potential for growing loblolly pine. The clayey subsoil and moderate equipment limitations are hazards for woodland use and management.

This soil has low potential for most urban uses. The clayey subsoil has a slow percolation rate which is a limitation for septic tank absorption fields. The high shrink-swell potential, low strength, and slope are severe limitations for buildings. Capability unit VIe-3.

KR—Kirkville-Mantachie association. This association consists of moderately well drained and somewhat poorly drained soils on the flood plains along the Tombigbee River. Slopes are 0 to 2 percent.

This association is mainly forested. Old sloughs meander through the areas. The composition of this unit is more variable than most of the units in the county, but mapping has been controlled well enough to interpret for the expected use of the soils.

The Kirkville soils are in bands in the higher lying areas along stream channels. The Mantachie soils are in the lower lying areas. The soils are subject to frequent flooding. The mapped areas are elongated. They range to as much as one mile in width and to several thousand acres in size.

The pattern and extent of the soils are fairly uniform throughout the survey area. Each mapped area contains both soils and can contain one or more minor soils.

The dominant soils make up about 86 percent of the association. Kirkville soils and similar soils make up about 53 percent, and Mantachie soils make up about 33 percent.

The moderately well drained Kirkville soils typically have a surface layer of brown sandy loam about 4 inches thick. The subsoil is yellowish brown silt loam and has light brownish gray mottles. It is about 20 inches thick. These soils are underlain by gray loam and have yellowish brown mottles to a depth of 60 inches.

The Kirkville soils are strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is medium.

The somewhat poorly drained Mantachie soils typically have a surface layer of dark brown loam about 12 inches thick with pale brown mottles. The next layer is 6 inches of loam mottled in shades of brown and gray. The soil to a depth of 64 inches is gray loam and has yellowish brown mottles.

The Mantachie soils are strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is high.

Included with these soils in mapping are areas of the moderately well drained Mooreville soils and the somewhat poorly drained Mathiston soils.

Most of this association is in hardwood forest. It has a very high potential for timber. Use of equipment is restricted during wet seasons and periods of flooding. Plant competition and seedling mortality are moderate to severe.

Frequent flooding is the main limitation to use of these soils for farming and for nonfarm uses. If these soils are adequately protected from flooding, they have a high potential for row crops and pasture.

Because of soil wetness and flooding, the potential for urban uses is low. The potential for woodland wildlife habitat is good and potential for wetland wildlife habitat is fair. Capability unit Vw-1.

KT—Kirkville, Mantachie and Mooreville soils. This undifferentiated group consists of moderately well drained and somewhat poorly drained soils on the flood plains along the Tombigbee River. Slopes are 0 to 2 percent.

This map unit is chiefly forested. Old sloughs meander through the areas. The composition of this unit is more variable than most of the units in the county. Most delineations contain all of the dominant soils, however, some delineations contain only one or two of these soils.

The moderately well drained Kirkville and Mooreville soils are on the higher elevations along the stream channels and sloughs. The Mantachie soils are in the broad, lower lying areas. The soils in this map unit are frequently flooded. The mapped areas are elongated and range to more than one mile in width. Size of mapped areas ranges to as much as several thousand acres.

The dominant soils make up about 95 percent of the association. Kirkville soils and similar soils make up about 43 percent, Mantachie soils about 32 percent, and Mooreville soils about 20 percent.

The moderately well drained Kirkville soils typically have a brown sandy loam surface layer about 4 inches thick. The subsoil is yellowish brown silt loam that is mottled with light brownish gray. It is underlain by gray loam and has yellowish brown mottles between a depth of 24 and 60 inches.

The Kirkville soils are strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is medium.

The somewhat poorly drained Mantachie soils typically have a dark brown loam surface layer about 12 inches thick. The next layer is loam 6 inches thick that is mottled in shades of brown and gray. The underlying material, to a depth of 64 inches, is loam with yellowish brown mottles.

The Mantachie soils are strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is high.

The moderately well drained Mooreville soils typically have a surface layer of very dark grayish brown loam about 5 inches thick. The subsoil is dark yellowish brown and yellowish brown clay loam that has grayish mottles to a depth of 40 inches. The underlying material, to a depth of 60 inches, is mottled clay loam and loam.

The Mooreville soils are strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is high.

Included with these soils in mapping are small areas of the somewhat poorly drained Leeper and Mathiston soils.

Most of this map unit is in hardwood forest. It has a very high potential for growing timber. Equipment limitations are moderate to severe during the wet seasons and periods of flooding. Plant competition is moderate to severe.

Frequent flooding is the main limitation to use of these soils for farming and for nonfarm uses. At present, they have a low potential for growing crops. If these soils are adequately protected from flooding, they have high potential for row crops and pasture.

Because of soil wetness and flooding, the potential for urban use is low. The potential for woodland wildlife habitat is good, and the potential for wetland wildlife habitat is fair. Capability unit Vw-1.

Le—Leeper silty clay. This is a somewhat poorly drained soil on flood plains.

Typically, the surface layer is brown silty clay about 9 inches thick. It is underlain by dark grayish brown silty clay with brown mottles to a depth of 20 inches and by gray silty clay with brown and strong brown mottles to a depth of 50 inches.

This soil is medium acid to moderately alkaline. Permeability is very slow. Runoff is slow. The available water capacity is high. This soil has high shrink-swell potential. It is occasionally flooded during winter and spring.

Most of this soil is used for row crops and pasture. The rest is in woodland. Cotton, corn, soybeans, and pasture are well suited to this soil. Return of crop residue to the soil helps improve tilth. Most areas receive overflow in winter and spring, and drainage systems are needed to remove excess water. This soil has very high potential for growing cottonwood and sycamore. The wetness of the soil and the clayey subsoil, however, severely limit the use of equipment.

This soil has low potential for most urban uses. The high shrink-swell potential and flooding are severe limitations. Capability unit IIw-2.

LpB—Lexington silt loam, 2 to 5 percent slopes. This is a well drained soil. It is on broad ridges on the uplands.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The upper part of the subsoil is yellowish red silt loam 21 inches thick. It is underlain by red clay loam 30 inches thick and red sandy clay loam to a depth of 84 inches.

Some delineations have common rills and a few shallow gullies. Occasional deep gullies are in a few delineations. Included with this soil in mapping are small areas of Ora, Savannah, and Smithdale soils. Also included are soils that are similar except the upper part of the profile is less silty.

This soil is slightly acid to strongly acid. Permeability is moderate. The available water capacity is high. Runoff is medium. If the soil is cultivated, the erosion hazard is moderate. Tilth is good and the soil can be worked through a fairly wide range of moisture conditions.

This soil has high potential for growing row crops, hay, and pasture.

Most of this soil is used for row crops and pasture (fig. 3). The remaining part is wooded. Cotton, corn, soybeans, small grains, pasture, and pine trees are well suited to this soil.

Soil erosion is a hazard on cropland but can be controlled by use of crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce the hazard of erosion.

This soil has moderately high potential for growing loblolly pine. Limitations are only slight for woodland use and management.

This soil has moderate potential for most urban uses. The low strength is a moderate limitation for buildings. Capability unit IIe-1.

LuB2—Luverne fine sandy loam, 2 to 5 percent slopes, eroded. This is well drained soil. It is on narrow ridgetops on the uplands.

Typically, the surface layer is yellowish brown fine sandy loam about 7 inches thick. The subsoil is red sandy clay 16 inches thick. It is underlain by red sandy clay and clay that have brownish mottles to a depth of about 40 inches. The underlying layer is mottled sandy clay loam that has strata of soft shale and sandy loam to a depth of 50 inches.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Lexington, Ora, and Savannah soils.

This soil is strongly acid to extremely acid. Permeability is moderately low. The available water capacity is medium. Runoff is medium. When the soil is cultivated the erosion hazard is moderate. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions.

This soil has medium potential for growing row crops and pasture, and most of the soil is used for these crops. A small acreage is in woodland. Cotton, corn, soybeans, small grains, pasture plants, and pine trees are suited to this soil.

Soil erosion is a hazard on cropland but can be controlled by use of crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce erosion.

This soil has moderately high potential for growing loblolly pine. The clayey subsoil and moderate equipment limitations are hazards for woodland use and management.

This soil has low potential for most urban uses. The clayey subsoil has a slow percolation rate which is a limitation for septic tank absorption fields. The low strength is a severe limitation for buildings. Capability unit IIIe-2.

LuC2—Luverne fine sandy loam, 5 to 8 percent slopes, eroded. This is a well drained soil. It is on narrow ridgetops on the uplands.

Typically, the surface layer is yellowish brown fine sandy loam about 7 inches thick. The subsoil is red sandy clay 16 inches thick. It is underlain by red sandy clay and clay with brownish mottles to a depth of about 40 inches. The underlying layer is mottled sandy clay loam and has strata of shale and sandy loam to a depth of 50 inches.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Lexington, Ora, and Savannah soils.

This soil is strongly acid to extremely acid. Permeability is moderately slow. The available water capacity is medium. Runoff is medium. When the soil is cultivated the erosion hazard is moderate. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions.

This soil has a low potential for growing row crops because of slope and hazard of erosion. Most of this soil is used for pasture or woodland. The remaining part is in cropland. Cotton, corn, soybeans, small grains, pasture plants, and pine trees are suited to this soil.

Soil erosion is a hazard on cropland but can be controlled by use of crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce erosion.

This soil has moderately high potential for growing loblolly pine. The clayey subsoil and moderate equipment limitations are concerns for woodland use and management.

This soil has low potential for most urban uses. The clayey subsoil has a slow percolation rate which is a limitation for septic tank absorption fields. The low strength is a severe limitation for buildings. Capability unit IVe-2.

LuD2—Luverne fine sandy loam, 8 to 12 percent slopes, eroded. This is a well drained soil on narrow ridgetops and side slopes.

Typically, the surface layer is yellowish brown fine sandy loam about 7 inches thick. The subsoil is red sandy clay 16 inches thick. It is underlain by red sandy clay and clay and has brownish mottles to a depth of about 40 inches. The underlying layer is mottled sandy clay loam and has strata of soft shale and sandy loam to a depth of 50 inches.

The surface layer has been thinned by erosion and is mixed with the more clayey subsoil. Rills and shallow gullies are common in most fields. There are a few deep gullies that are not crossable by tillage implements.

This soil is strongly acid to extremely acid. Permeability is moderately slow. Available water capacity is medium. Runoff is rapid, and the erosion hazard is severe when the soil is not protected by permanent cover.

Because of slope and the hazard of erosion this soil needs to be kept in permanent vegetation. Most areas of this soil are wooded, but some small areas are in pasture.

This soil has medium potential for growing bahiagrass and improved bermudagrass. It has low potential for growing row crops because of slope and the erosion hazard.

This soil has moderately high potential for growing loblolly pine. The clayey subsoil and moderate equipment limitations are hazards for woodland use and management.

This soil has low potential for most urban uses. The clayey subsoil has a slow percolation rate which is a limitation for septic tank absorption fields. Low strength is a severe limitation for buildings. Capability unit VIe-2.

LuE—Luverne fine sandy loam, 12 to 25 percent slopes. This well drained soil is on side slopes. The landscape is chiefly forested and has narrow ridgetops and side slopes broken by numerous drainageways.

Typically, the surface layer is yellowish brown fine sandy loam about 7 inches thick. The subsoil is red sandy clay 16 inches thick. It is underlain by red sandy clay and clay and has brownish mottles to a depth of 40 inches. The underlying layer is mottled sandy clay loam and has strata of soft shale and sandy loam to a depth of 50 inches.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Smithdale soils.

This soil is strongly acid to extremely acid. Permeability is moderately slow. The available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe when the soil is not protected by permanent cover. This soil needs to be kept in permanent vegetative cover to prevent erosion. Most of this soil is wooded, and a small acreage is in pasture.

Because of the steep slope and the erosion hazard, this soil has low potential for growing bahiagrass, improved bermudagrass, and row crops.

This soil has moderately high potential for growing loblolly pine. The clayey subsoil and moderate equipment limitations are hazards for woodland use and management.

This soil has low potential for most urban uses. The steep slopes and low strength are severe limitations for buildings. Steep slopes and a slow percolation rate are limitations for septic tank absorption fields. Capability unit VIIe-2.

Ma—Mantachie loam. This nearly level, somewhat poorly drained soil is on flood plains and upland drainageways.

Typically, the surface layer is brown loam about 12 inches thick and has pale brown mottles at a depth of 4 to 12 inches. The subsoil to a depth of 18 inches is mottled yellowish brown, grayish brown, and strong brown loam. It is underlain by gray loam and has grayish brown, strong brown, and yellowish brown mottles to a depth of 64 inches.

Included with this soil in mapping are small areas of Jena, Marietta, and Mathiston soils.

This soil is strongly acid or very strongly acid. Permeability is moderate. The available water capacity is high. Runoff is slow, and field drainage is needed to remove excess water. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions. This soil is generally flooded for short periods in winter and spring.

This soil has high potential for and is mostly used for growing row crops and pasture. The rest is in bottom land hardwoods and pine timber. This soil is suited to cotton, corn, soybeans, pasture plants, pine timber, and adapted hardwoods. Row arrangement and drainage are needed. Return of crop residue to the soil helps maintain tilth.

This soil has a very high potential for growing cherrybark oak and loblolly pine. The wetness of the soil causes severe equipment limitations and moderate seedling mortality.

This soil has severe limitations and low potential for most urban uses. The wetness of the soil is a severe hazard. Capability unit IIw-4.

Mr—Marietta loam. This nearly level, moderately well drained soil is on flood plains and upland drainageways. Slopes are 0 to 2 percent.

Typically, the surface layer is brown loam about 6 inches thick. The subsoil to a depth of 18 inches is yellowish brown silty clay loam and clay loam and has strong brown and light gray mottles in the lower part. To a depth of 55 inches, it is mottled gray, yellowish brown, and strong brown silty clay loam and loam.

Included with this soil in mapping are small areas of Mantachie and Leeper soils.

This soil is medium acid to mildly alkaline. It generally is subject to overflow for short periods in winter and spring. Permeability is moderate. The available water capacity is high. Runoff is slow, and field drainage is needed to remove excess water. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions.

Almost all of this soil is in row crops and pasture. The remaining part is in bottom land hardwoods and pine timber. This soil is suited to cotton, corn, soybeans, pasture, pine timber, and adapted hardwoods. It has a high potential for growing row crops and pasture. Drainage, row arrangement, and return of crop residue to the soil are needed.

This soil has a very high potential for growing cottonwood, sweetgum, sycamore, and yellow-poplar. The wetness of the soil creates moderate equipment limitations.

This soil has low potential for most urban uses. Susceptibility to flooding, wetness, and low strength are severe limitations. Capability unit IIw-6.

Mt—Mathiston silt loam. This nearly level, somewhat poorly drained soil is on flood plains and upland drainageways. Slopes are 0 to 2 percent.

Typically, the surface layer is 16 inches of dark brown silt loam that has yellowish brown and yellowish red mottles. Below this is gray silt loam that has yellowish brown and strong brown mottles. At a depth of 32 to 60 inches is gray silt loam that has yellowish brown and strong brown mottles.

Included with this soil in mapping are small areas of Mantachie soils.

This soil is strongly acid or very strongly acid. Permeability is moderate. The available water capacity is high. Runoff is slow, and field drainage is needed to remove excess water. This soil is occasionally subject to overflow in winter and early in spring. Tilth is fair, and this soil crusts and packs.

Most of this soil is in row crops and pasture. The rest is in bottom land hardwoods and pine timber. This soil is suited to cotton, corn, soybeans, small grains, and pasture. It has a high potential for growing row crops and pasture. Surface field drainage and proper arrangement of crop rows help remove excess water. Return of crop residue to the soil helps improve tilth.

This soil has very high potential for growing cherrybark oak and loblolly pine. It has a severe equipment limitation because of flooding and wetness.

This soil has low potential for most urban uses. The high water table and susceptibility to flooding are severe limitations. Capability unit IIw-4.

OaB2—Ora fine sandy loam, 2 to 5 percent slopes, eroded. This is a moderately well drained soil. It is on ridgetops on the uplands.

Typically, the surface layer is yellowish brown fine sandy loam about 5 inches thick. The next layer is yellowish red sandy clay loam to a depth of 14 inches. It is underlain by yellowish red loam to a depth of about 22 inches. At a depth of 22 to 56 inches is a compact and brittle fragipan. The 22- to 36-inch layer is yellowish red loam and has red and gray mottles. The underlying layer is mottled yellowish red, red, and gray sandy loam.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Smithdale and Savannah soils.

This soil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. The available water capacity is medium. Runoff is medium. When the soil is cultivated, the hazard of erosion is moderate. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions. The root zone is moderately deep and easily penetrated by plant roots to the fragipan.

Most of the soil is used for row crops and pasture. A small acreage is wooded. Cotton, corn, soybeans, small grains, pasture plants, and pine trees are suited to this soil. It has a high potential for row crops.

Soil erosion is a hazard on cropland but can be controlled by the use of crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce erosion.

This soil has moderately high potential for growing loblolly pine. It has only slight limitations for woodland use and management.

This soil has medium potential for most urban uses. The fragipan has a slow percolation rate which is a limitation for septic tank absorption fields. This can be partially overcome by enlarging the filter field. Low strength is the main limitation for buildings. Capability unit IIe-2.

OaC2—Ora fine sandy loam, 5 to 8 percent slopes, eroded. This is a moderately well drained soil. It is on ridgetops on the uplands.

Typically, the surface layer is yellowish brown fine sandy loam about 5 inches thick. The subsoil is yellowish red sandy clay loam to a depth of 14 inches. It is underlain by yellowish red loam to a depth of 22 inches. At a depth of 22 to 56 inches is a compact and brittle fragipan. The 22- to 36-inch layer is yellowish red loam and has a few faint red and gray mottles. The underlying layer is mottled sandy loam.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Smithdale and Savannah soils.

This soil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. The available water capacity is medium. Runoff is medium. When the soil is cultivated, the hazard of erosion is severe. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions. The root zone is moderately deep and easily penetrated by plant roots to the fragipan.

This soil has medium to high potential for growing row crops and pasture, and most of the soil is used for these crops. The remaining part is wooded. Cotton, corn, soybeans, small grains, pasture, and pine trees are suited to this soil.

Soil erosion is a hazard on cropland but can be controlled by the use of crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce erosion.

The soil has moderately high potential for growing loblolly pine. It has only slight limitations for woodland use and management.

This soil has medium potential for most urban uses. The fragipan has a slow percolation rate which is a limitation for septic tank absorption fields. This can be partially overcome by enlarging the filter field. Low strength is the main limitation for buildings. Capability unit IIIe-4.

OaD2—Ora fine sandy loam, 8 to 12 percent slopes, eroded. This is a moderately well drained soil. It is on narrow ridgetops and side slopes.

Typically, the surface layer is yellowish brown fine sandy loam about 5 inches thick. The subsoil is yellowish red sandy clay loam to a depth of 14 inches. It is underlain by yellowish red loam to a depth of about 22 inches. Below that is a compact and brittle fragipan at a depth of 22 to 56 inches. The 22- to 36- inch layer is yellowish red loam and has few faint red and gray mottles. The underlying layer is mottled yellowish red, red, and gray sandy loam.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Luverne and Smithdale soils.

This soil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. The available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe when the soil is not protected by permanent cover.

Because of slope and the erosion hazard, this soil needs to be kept in permanent vegetation. Most areas of this soil are wooded, but some small areas are in pasture.

This soil has medium potential for growing bahiagrass and improved bermudagrass. It has low potential for growing row crops because of slope and the erosion hazard.

This soil has moderately high potential for growing loblolly pine. It has only slight limitations for woodland use and management.

This soil has low potential for most urban uses. The fragipan has a slow percolation rate which is a limitation for septic tank absorption fields. This can be partially overcome by enlarging the filter field. Slope and low strength are moderate limitations for buildings. Capability unit IVe-3.

Ph—Pheba silt loam. This is a somewhat poorly drained soil. It is on ridgetops on uplands and terraces. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 3 inches thick. The subsoil is pale brown silt loam mottled with gray and brown to a depth of 14 inches. The next layer to a depth of 21 inches is silt loam mottled in shades of yellow, gray, and brown. Below this, to a depth of 80 inches, is a compact and brittle fragipan. The 21- to 28-inch layer is yellowish brown silt loam and has light brownish gray and yellow mottles. The 28- to 61-inch layer is mottled light brownish gray, light gray, yellowish brown, and strong brown clay loam. The underlying layer to a depth of 80 inches is mottled light gray, yellow, yellowish brown, and strong brown loam.

Included with this soil in mapping are small areas of Harleston and Trebloc soils.

This soil is strongly acid to extremely acid. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. The available water capacity is medium. Runoff is slow. When the soil is cultivated, the erosion hazard is slight. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions. The surface layer crusts and packs. The root zone is moderately deep to the fragipan.

Most of this soil is used for row crops or pasture, and the soil has medium to high potential for these crops. Cotton, corn, soybeans, pasture plants, and pine trees are suited to the soil.

Erosion is not a problem on this soil. The soil has a perched seasonal water table above the fragipan, and some surface drainage is needed.

This soil has high potential for growing loblolly pine, shortleaf pine, and sweetgum. Seasonal wetness is a moderate limitation.

This soil has low potential for urban uses. The fragipan has a slow percolation rate which is a limitation for septic tank absorption fields. Wetness is a moderate limitation for buildings. Capability unit IIIw-1.

Pt—Pits. Several pits are in the eastern part of the county. These pits are open excavations from which gravel, sand, and clay have been removed. The gravel and sand pits are in the Tuscaloosa Formation. Depth to gravel ranges from about 3 to 5 feet or more. Thickness of the gravel strata ranges to several feet. The clay pits are in the Eutaw Formation. Depth to the clay ranges from about 5 to 20 feet. Not placed in a capability unit.

SaF—Saffell gravelly sandy loam, 8 to 45 percent slopes. This strongly sloping to steep, well drained, gravelly soil is on hillsides.

Typically, the surface layer is brown gravelly sandy loam about 4 inches thick. The subsoil is yellowish red gravelly sandy clay loam to a depth of 30 inches. Between a depth of 30 and 60 inches is reddish yellow and yellowish red gravelly sandy loam.

Included with this soil in mapping are small areas of Luverne and Smithdale soils.

This soil is strongly acid or very strongly acid. Permeability is moderate. Runoff is medium to rapid.

Practically all of this soil is in pine and hardwood forest. Some areas have been cleared and mined for gravel. Because of the steep slopes and gravel content, this soil has low potential for row crops and pasture.

This soil has a moderate potential for growing loblolly pine. Moderate seedling mortality is a limitation for management.

This soil has low potential for urban uses. The steep slopes are a severe limitation. Capability unit VIIe-1.

SbA—Savannah loam, 0 to 2 percent slopes. This is a moderately well drained soil. It is on ridgetops on uplands and stream terraces.

Typically, the surface layer is yellowish brown loam about 6 inches thick. The subsoil is strong brown silty clay loam to a depth of 25 inches. Below that is a compact and brittle fragipan that extends to a depth of 65 inches. The 25- to 50-inch layer is mottled strong brown, yellowish brown, yellowish red, and light brownish gray loam. This is underlain by mottled light brownish gray, yellowish red, and yellowish brown sandy clay loam.

In most fields the hazard of erosion is slight, but a few gall spots occur in some places. Included with this soil in mapping are small areas of Pheba, Harleston, and Ora soils.

This soil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. The available water capacity is medium. Runoff is slow. When the soil is cultivated, the erosion hazard is slight. Tilth is fair, and the soil can be worked through a fairly wide range of moisture conditions. The root zone is moderately deep and easily penetrated by plant roots to the fragipan.

Most of this soil is used for row crops and pasture, and the soil has a high potential for these crops. Cotton, corn, soybeans, small grains, pasture plants, and pine trees are well suited to this soil.

Erosion is a slight hazard on this soil. This soil has a seasonal perched water table above the fragipan, and surface drainage is needed. Return of crop residue to the surface helps to improve tilth.

This soil has moderately high potential for growing loblolly pine and shortleaf pine. It has no significant limitations for woodland use or management.

This soil has moderate potential for most urban uses. The fragipan has a slow percolation rate which is a limitation for septic tank absorption fields. Wetness is a moderate limitation for buildings. This may be partially overcome by special design of the filter fields. Low strength is also a moderate limitation for buildings. Capability unit IIw-3.

SbB—Savannah loam, 2 to 5 percent slopes. This is a moderately well drained soil on broad upland ridgetops.

Typically, the surface layer is yellowish brown loam about 6 inches thick. The subsoil is strong brown silty clay loam to a depth of about 25 inches. Below that is a compact and brittle fragipan that extends to a depth of 65 inches. The 25- to 50-inch layer is mottled strong brown, yellowish brown, yellowish red, and light brownish gray loam. This is underlain by mottled light brownish gray, yellowish red, and yellowish brown sandy clay loam.

In most fields the hazard of erosion is slight, but a few gall spots are in some places. Included with this soil in mapping are small areas of Harleston, Ora, and Pheba soils.

This soil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. The available water capacity is medium. Runoff is medium. When the soil is cultivated, the erosion hazard is moderate. This soil has fair tilth and can be worked throughout a fairly wide range of moisture conditions. The root zone is moderately deep and easily penetrated by plant roots to the fragipan.

Most of this soil is used for row crops and pasture, and the soil has high potential for these crops. Cotton, corn, soybeans, small grains, pasture plants, and pine trees are well suited to the soil.

Soil erosion is a hazard on this soil and can be controlled by use of crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce erosion.

This soil has moderately high potential for growing loblolly pine and shortleaf pine trees. It has no significant limitations for woodland use or management.

This soil has medium potential for most urban uses. The fragipan has a slow percolation rate which is a limitation for septic tank absorption fields. This can be partially overcome by special design of the filter fields. Wetness and low strength are moderate limitations for buildings. Capability unit IIe-2.

SdC2—Smithdale fine sandy loam, 5 to 8 percent slopes, eroded. This is a well drained soil. It is on narrow ridgetops on the uplands.

Typically, the surface layer is dark brown fine sandy loam about 6 inches thick. The subsoil is red sandy clay loam to a depth of 45 inches. It is underlain by red sandy loam to a depth of about 85 inches.

In most fields the surface layer has been thinned by erosion and is mixed with the subsoil. Small rills are common, and a few shallow gullies are in most fields. Included with this soil in mapping are small areas of Lexington, Ora, and Luverne soils.

This soil is strongly acid or very strongly acid. Permeability is moderate. The available water capacity is medium. Runoff is medium. When the soil is cultivated, the erosion hazard is moderate. Tilth is good, and the soil can be worked through a wide range of moisture conditions.

Most of this soil is used for row crops or pasture, and the soil has a medium potential for these crops. The remaining acreage is wooded. Cotton, corn, small grains, pasture plants, and pine trees are suited to this soil.

Erosion is a hazard on cropland but can be controlled by use of crop rotation, contour stripcropping, terraces, and grassed waterways. Return of crop residue to the soil helps maintain tilth and reduce erosion.

This soil has a moderately high potential for growing loblolly pine (fig. 4). It has no significant limitations for woodland use or management.

This soil has medium to high potential for urban uses. Slope is a moderate limitation for small commercial buildings. Limitations for dwellings are slight. Capability unit IIIe-3.

SdE—Smithdale fine sandy loam, 8 to 17 percent slopes. This well drained soil is on side slopes. The landscape is mainly forested and has narrow ridgetops and side slopes broken by numerous drainageways.

Typically, the surface layer is yellowish brown fine sandy loam about 5 inches thick. The subsoil is yellowish red and red sandy clay loam in the upper part and sandy loam in the lower part to a depth of 82 inches.

Included with this soil in mapping are small areas of Luverne soils and small areas of Smithdale soils that have slopes of as much as 30 percent.

This soil is strongly acid or very strongly acid. Permeability is moderate. Available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe when the soil is not protected by permanent cover. This soil needs permanent vegetation to prevent erosion. Most of this soil is wooded and a small acreage is in pasture.

Because of the steep slopes and the erosion hazard this soil has low potential for growing row crops (fig. 5). It has a high potential for bahiagrass and improved bermudagrass.

This soil has moderately high potential for growing loblolly pine. It has slight limitations for woodland use and management.

This soil has medium to high potential for urban uses. Slope is a moderate limitation for septic tank absorption fields. Limitations for dwellings are moderate and for commercial buildings are severe because of slope. Capability unit VIe-1.

SMF—Smithdale association, hilly. This association consists of well drained soils on uplands. Slopes are 17 to 35 percent.

This unit is throughout the northwestern part of the county. Most areas are wooded and consist of long narrow ridges about 200 to 800 feet wide and one-fourth mile to one mile long. The side slopes are steep and broken by natural drains. Individual areas range from 200 to 1,500 acres in size.

The Smithdale soils and similar soils, which are sandy clay loam in the upper part of the subsoil and sandy loam in the lower part to a depth of about 80 inches, are on the upper side slopes and ridgetops. Smithdale soils are the dominant soils on the steep side slopes. Also there is a similar soil that is underlain by stratified, loamy soil material. The composition of this map unit is more variable than other units in the county, but mapping has been controlled well enough to interpret for the expected use of the soils.

Smithdale soils and similar soils make up about 93 percent of the association.

The well drained Smithdale soils typically have a surface layer of brown fine sandy loam about 5 inches thick. The subsoil is yellowish red sandy clay loam to a depth of about 30 inches. It is underlain by yellowish red sandy loam to a depth of 80 inches.

The Smithdale soils are strongly acid or very strongly acid. Permeability is moderate. The available water capacity is medium. Surface runoff is medium to rapid.

Included with this association in mapping are the well drained Jena soils and the somewhat poorly drained Mantachie soils on the flood plains and the moderately well drained Ora soils on uplands.

This association has low potential for growing row crops and pasture. Steep slopes and the erosion hazard limit its potential.

The potential for growing trees is moderately high. The Smithdale soils have no significant limitations for woodland use and management.

This association has low potential for most urban uses. Slope is the main limitation. Capability unit VIIe-1.

STF—Smithdale-Luverne association, hilly. This association consists of well drained soils on uplands. Slopes are 12 to 35 percent.

This unit is throughout the southern and southeastern parts of the county. Most areas are wooded and consist of long narrow ridges 200 to 800 feet wide and one-fourth mile to more than one mile long. The Smithdale soils are on the ridgetops and upper side slopes. The side slopes are steep and broken by natural drains. The areas that are between the drains and ridgetops are large. Individual areas range from 300 to 1,500 acres in size. The Luverne soils are on the middle and lower side slopes. The composition of this unit is more variable than other soils in the county. Mapping has been controlled well enough, however, to interpret for the expected use of the soils.

The dominant soils make up about 90 percent of this association. Smithdale soils make up about 50 percent and Luverne soils about 40 percent. The pattern and extent of the Smithdale and Luverne soils are fairly uniform throughout the area. Each area contains both soils and can contain one or more minor soils.

The well drained Smithdale soils typically have a yellowish brown fine sandy loam surface layer about 5 inches thick. The subsoil is yellowish red or red sandy clay loam in the upper part and sandy loam in the lower part to a depth of 82 inches.

The Smithdale soils are strongly acid or very strongly acid. Permeability is moderate. The available water capacity is medium. Surface runoff is medium to rapid.

The well drained Luverne soils typically have a surface layer of yellowish brown fine sandy loam about 7 inches thick. The subsoil is red sandy clay to a depth of 23 inches. It is underlain by red sandy clay and clay and has brownish mottles to a depth of 40 inches. The underlying layer is mottled sandy clay loam and has strata of soft shale and sandy loam.

The Luverne soils are strongly acid to extremely acid. Permeability is moderately slow. The available water capacity is medium. Surface runoff is rapid.

Included with this association in mapping are the well drained Jena soils and somewhat poorly drained Mantachie soils on flood plains and the moderately well drained Ora soils on uplands.

This association has low potential for growing row crops and pasture. Steep slopes and the hazard of erosion limit its potential.

The potential for growing trees is moderately high. The Smithdale soils have no significant limitations, and the clayey subsoil of the Luverne soils is a moderate limitation for woodland use and management.

This association has low potential for most urban uses. Slope is the main limitation. The clayey subsoil of the Luverne soils is also a limitation. Capability unit VIIe-1.

SuE2—Sumter silty clay, 8 to 17 percent slopes, eroded. This is a well drained, calcareous soil on side slopes.

Typically, the surface layer is olive silty clay about 4 inches thick underlain by light yellowish brown and olive silty clay to a depth of 14 inches. The subsoil to a depth of 33 inches is pale olive silty clay and has light olive gray mottles in the lower part. Below this is light yellowish brown marly clay and mottled light brownish gray and olive yellow chalk.

In areas that have been cultivated the plow layer consists of a mixture of the original surface layer and subsoil. The hazard of erosion is severe. Most areas have shallow rills and gullies.

Included with this soil in mapping are areas of Kipling soils and areas of chalk outcrops.

This soil is mildly alkaline or moderately alkaline and calcareous. Permeability is slow. Runoff is rapid. Available water capacity is medium.

Most of this soil is used for pasture. The soil is better suited to pasture than to other crops. It needs to be kept in permanent vegetation because of the steepness of slope and the erosion hazard. The potential for row crops is low because of the steepness of slope and the erosion hazard.

This soil has low potential for most trees. The only tree that can be grown successfully is eastern redcedar.

This soil has low potential for most urban uses. The steep slopes and low strength are severe limitations for buildings. Steep slopes and depth to rock are limitatons for septic tank absorption fields. Capability unit VIe-4.

Tr—Trebloc silt loam. This is a poorly drained soil that is on low terraces and uplands. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick and is underlain by light brownish gray silt loam about 4 inches thick. Between a depth of 9 and 19 inches, there is a gray silty clay loam layer with brownish mottles. From 19 to 65 inches is gray clay loam and loam that has yellow and brown mottles.

Included with this soil in mapping are small areas of Pheba soils.

This soil is very strongly acid or strongly acid. Permeability of the soil is moderately slow. The available water capacity is high. Tilth is fair. This soil has a seasonal water table near the surface. Surface field ditches and proper arrangement of crop rows are needed if the soil is cultivated.

Most of this soil is in hardwoods, and the remainder is in pasture. Runoff is slow, and a water disposal system is needed for all crops except trees. Most commonly grown pasture plants and trees and a limited row crop, such as soybeans, are suited to this soil.

This soil has high potential for growing loblolly pine. Because of wetness of the soil, equipment limitations and seedling mortality are severe.

This soil has low potential for most urban uses. The wetness of the soil and susceptibility to flooding are severe limitations. Capability unit IIIw-2.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on

soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture, rangeland, and woodland, as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities, and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

THOMAS E. MAIN, staff conservationist, Soil Conservation Service, assisted in the preparation of this section.

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil, including some not commonly grown in the survey area, are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

More than 96,800 acres in the survey area was used for crops and pasture in 1967, according to the Conservation Needs Inventory (*9*). Of this total 28,100 acres was used for permanent pasture; 38,580 acres for row crops, mainly cotton and soybeans; 4,878 acres for close-grown crops, mainly wheat and oats; and 216 acres for rotation hay and pasture. The rest was idle cropland.

The potential of the soils in Itawamba County for increased production of food and fiber is good. About 17,000 acres of potentially good cropland is currently used as woodland, and about 13,000 acres is being used as pasture. In addition to the reserve productive capacity represented by this land, production could be increased considerably by extending the latest crop production technology to all cropland in the county. This soil survey can greatly facilitate the application of such technology.

Acreage in crops, mainly soybeans, has increased in the last several years, and pasture acreage has remained stable. The use of this survey to help make land use decisions that will influence the future role of farming in the county is discussed in the section "General soil map for broad land use planning."

Erosion is the major soil problem on more than two-thirds of the land in Itawamba County. If the slope is more than 2 percent, erosion is a hazard. Lexington, Ora, and Savannah soils, for example, have slopes of 2 to 5 percent.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils with a clayey subsoil, such as Luverne soils, and on soils with a layer in or below the subsoil that limits the depth of the root zone. Such layers include fragipans, as in Ora and Savannah soils, or shale, as in Luverne soils. Erosion also reduces productivity on soils that tend to be droughty, such as the Smithdale soils. Second, erosion on farmland results in sediment entering streams. Control of erosion minimizes the pollution of streams by sediment and improves quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, preparing a good seedbed and tilling are difficult on clayey or hardpan spots, because the original friable surface soil has been eroded away. Such spots are common in areas of the eroded Luverne and Ora soils.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps vegetative cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soil. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land and also provide nitrogen and improve tilth for the following crop.

Cropping systems that provide substantial vegetative cover are needed to control erosion on sloping soils unless minimum tillage is practiced. Minimizing tillage and leaving crop residue on the surface help to increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most soils in the survey area

but are more difficult to use successfully on the eroded soils. Nontillage for soybeans is effective in reducing erosion on sloping land and can be adapted to most soils in the survey area.

Terraces and diversions reduce the length of slope and reduce runoff and erosion. They are most practical on deep, well drained soils that have regular slopes. Lexington and Smithdale soils are generally suitable for terraces. Some soils are less suitable for terraces and diversions because of irregular or steep slopes.

Contouring and contour stripcropping are erosion control practices that can be used in the survey area. They are best adapted to soils with smooth, uniform slopes, including most areas of the sloping Ora and Savannah soils.

Information on the design of erosion control practices for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil drainage is the major management need on about one-fourth of the acreage used for crops and pasture in the survey area. Most of the soils on flood plains need artificial drainage to achieve maximum production. In this category are Jena, Leeper, Mantachie, Marietta, and Mathiston soils. These soils account for about 56,800 acres in Itawamba County.

Savannah and Pheba soils are upland soils in broad, nearly level areas. They need artificial drainage to achieve maximum production.

The design of drainage systems varies with the kind of soil, the slope, the size of the area to be drained, and vegetation. Information on drainage design for each soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil fertility is naturally low in most of the soils on uplands in the survey area. All but Sumter, Leeper, and Marietta soils are naturally acid. The soils on flood plains, such as Jena, Mantachie, and Mathiston soils, are very strongly acid or strongly acid and are naturally higher in plant nutrients than most upland soils.

Many upland soils are naturally very strongly acid, and if they have never been limed, they need applications of ground limestone to raise the pH level sufficiently for good growth of crops and pasture. Available phosphorus and potash levels are naturally low in most of these soils. On all the soils, additions of lime and fertilizer should be based on results of soil tests, on the need of the crop, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a loam or sandy loam surface layer that is light in color and low in content of organic matter. Generally the structure of such soils is weak and intense rainfall causes the formation of a crust on the surface. The crust is hard when the soil is dry, and it is nearly impervious to water. Once the crust forms, it reduces infiltration and increases runoff. Regular additions of crop residue, manure, and other organic material can help improve soil structure and to reduce crust formation.

Fall plowing is generally not a good practice on the light colored soils, as they erode easily. Some fall plowing, however, is done in the western part of the county.

Field crops suited to the soils and climate of the survey area include many that are not commonly grown. Cotton, corn, and soybeans are the main row crops. Alfalfa, sorghum, millet, cowpeas, field beans, peanuts, potatoes, and similar crops can be grown if economic conditions are favorable.

Wheat and oats are common close-growing crops. Rye and barley can be grown, and grass seed can be produced from fescue and bahiagrass. The row crops are best suited to Jena, Leeper, Mantachie, Marietta, and Mathiston soils that are occasionally flooded and nearly level to sloping Savannah, Ora, Lexington, and Smithdale soils. Close-growing crops are suited to these soils and, in addition, can be grown on steeper areas of these and other soils.

Deep soils that have good natural drainage and that warm early in spring are especially suited to many vegetables. Fruits such as peaches, pears, and apples are best suited to the deep, well drained Lexington and Smithdale soils, except on steeper areas that are more susceptible to erosion.

In addition to those mentioned above, many other crops can be grown. Latest information and suggestions on growing special crops can be obtained from the offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the crop is not suited to or not commonly grown on the soil.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 6.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties;

appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

The estimated yields reflect the productive capacity of the soils for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forest trees, or for engineering purposes.

In the capability system, all kinds of soil are grouped at three levels: capability class, subclass, and unit. These levels are defined in the following paragraphs (*6*). A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class, subclass, and unit is indicated in table 7. All soils in the survey area are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability class II. Data in this table can be used to determine the farming potential of such soils.

The capability unit is identified in the description of each soil map unit in the section "Soil maps for detailed planning." Capability units are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-2 or IIIe-4.

Woodland management and productivity

JOSEPH V. ZARY, forester, Soil Conservation Service, assisted in the preparation of this section.

This section contains information on the relationship between trees and their environment, particularly the soils on which they grow. It also includes information on the kind, amount, and condition of woodland resources and the industries they support. This section also includes interpretations of the soils that can be used by owners of woodland, foresters, forest managers, and agricultural workers to develop and carry out plans for profitable tree farming.

Trees and their environment. The total environment of the tree is a complex integration of numerous interrelated physical and biological factors (*8*). Physical factors include those of the climate, such as various measures of radia-

tion, precipitation, and movement and composition of the air. They also include factors of the soil, such as texture, structure, depth, moisture capacity, drainage, nutrient content, and topographic position. Biological factors are the plant associates; the larger animals that use the forest as a source of food and shelter; the many small animals, insects, and insectlike animals; the fungi to which the trees are hosts; and the myriads of micro-organisms in the soil, the functions of many of which are beneficial to the tree.

Tree and soil relationships. Possibly the most important environmental factor influencing tree growth and woodland species composition is soil. In addition to being a reservoir of moisture for a tree, soil provides all the essential elements required in growth except those derived from the atmosphere, carbon from carbon dioxide and oxygen (*7*). Soil also provides the medium in which a tree is anchored. The many characteristics of soil, such as chemical composition, texture, structure, depth, and position, affect the growth of a tree to the extent to which they affect the supply of moisture and nutrients. A number of studies have shown strong correlations between productivity of site or growth of trees and various soil characteristics, such as depth and position on the slope. The relationships are often indirect. The ability of a soil to supply water and nutrients to trees is strongly related to its texture, structure, and depth. Sands contain only a small amount of plant nutrients and are low in available water capacity. Many fine-textured soils, for example, clays, are high in plant nutrients and have high available water capacity. Aeration is impeded in clays, however, particularly under wet conditions so that metabolic processes requiring oxygen in the roots are inhibited.

The position on slope strongly influences species composition. Moisture-loving species such as sweetgum and yellow-poplar thrive on moderately moist, well drained, loamy textured soils that are on lower to middle slopes and in areas adjoining streams. Less demanding species, such as oak, hickory, and pine, grow well on middle slopes and moderately well on upper slopes and ridges.

Silvicultural practices that help to prevent the destruction of organic matter and the compaction of soil are important in maintaining suitable conditions of soil moisture and aeration. Such practices as (1) sanitation cutting to remove trees killed or injured by fire, insects and fungi; (2) improvement cutting for the purpose of improving species composition and stand condition; and (3) thinning to increase rate of growth, improve composition, and foster quality all result in long-term increases in total yield and income as well as exerting beneficial influences on woodland soils and environment.

Woodland resources. As of 1967, an area of approximately 225,600 acres or 65 percent of the total land area of Itawamba County was classified as commercial forest (*13, 15*). Commercial forest is defined as land that is producing or is capable of producing crops of industrial wood and that is not withdrawn from timber use. Commercial forest in Itawamba County is divided into classes of ownership as follows: a total of 114,400 acres is owned by farmers, 68,200 acres is owned by miscellaneous private owners, 42,900 acres is held by the forest industry, and 100 acres is in public ownership (*12*).

According to the 1967 Soil and Water Conservation Needs Inventory for Mississippi, 91,571 acres or 41 percent of the commercial forest land was considered to have 'adequate treatment" (*9*). The remaining 134,029 acres or 59 percent needs further conservation treatment. "Establishment and Reinforcement," including practices such as tree planting, site preparation, natural seeding, and direct seeding was needed on approximately 61,986 acres. "Timber Stand Improvement," including practices such as release, salvage and sanitation cuttings, and thinning was needed on approximately 72,043 acres. The treatments and practices mentioned are especially needed on woodlands included in the farmer and miscellaneous ownership categories, which total 182,600 acres (*13*).

Generally these woodlands throughout the county are receiving low to medium levels of management and are producing far less than their growth potentials. Establishment of the needed practices would nearly double present yields of tree crops and would greatly increase the income of the woodland owners, besides enhancing the timber economy of the county.

The commercial forest may also be subdivided into forest types. Forest types are stands of trees of similar character, composed of species forming a plurality of live-tree stocking, and growing under the same ecological and biological conditions. Forest types are named for the species which are present in the greatest abundance and frequency (*4, 13, 12*).

On this basis, the oak-hickory forest type, composed mainly of upland oaks and hickories, is the most important. It occupies approximately 76,800 acres throughout the county. Common associates in this forest type are maple, elm, yellow-poplar, and some pine (*4, 13, 12*).

The oak-pine forest type, composed of upland oaks in mixtures with loblolly pine and shortleaf pine, is second in importance. It occupies approximately 57,600 acres. Common associates include hickory, sweetgum, blackgum, and yellow-poplar.

The loblolly-shortleaf pine forest type, composed mainly of loblolly or shortleaf pine, singly or in combination, ranks third in importance. It occupies about 48,000 acres. Common associates include sweetgum, blackgum, hickory, and oak species.

The three forest types mentioned above occupy 182,400 acres or about 83 percent of the total commercial forest acreage in the county. These forest types are so intermingled that it would be difficult to delineate the individual types either on a map or otherwise by geographic description. Topographically, the three forest types occupy lower, middle, and upper slopes throughout the county and are situated on soils of the Smithdale, Luverne, and Saffell series.

The oak-gum-cypress forest type, composed mainly of bottom land hardwoods such as tupelo, blackgum, sweet-

gum, oaks, and southern cypress, singly or in combination, ranks fourth in importance. It occupies about 38,400 acres. Common associates include willow, ash, elm, hackberry, maple, and cottonwood (*11*). The southern cypress component is relatively unimportant in Itawamba County. This forest type is located mainly in the central and southwest parts of the county on soils such as Jena, Kirkville, and Mantachie soils in the bottom lands of the Tombigbee River and its principal tributaries—Mackys Creek, Mantachie Creek, Bull Mountain Creek—and of some of the smaller creeks, such as Cypress, Gum, Big Brown, and Little Brown Creeks.

The elm-ash-cottonwood forest type is fifth in importance and occupies approximately 4,800 acres of the county. This forest type consists of elm, ash, and cottonwood, singly or in combination. Common associates include willow, sycamore, beech, and maple. This forest type is intermingled with, but not so extensive as, the oak-gum-cypress type described above and is located in the same river and creek systems.

Of the individual species, sweetgum is the most widely distributed and most important species commercially. Hickory, red oak species, yellow-poplar, white oak species, beech, tupelo, blackgum, loblolly and shortleaf pine, maple, elm, ash, and cottonwood rank in the order named (*14, 7*).

The soils of Itawamba County are best suited to hardwood species and the forests are predominantly the hardwood types. Further evidence of Itawamba County being a "hardwood county" is the fact that approximately 78 percent of the annual sawtimber production is hardwood.

As of 1967, the forests of Itawamba County supported a total of 296.5 million board feet of sawtimber, including 194.6 million board feet of hardwood and 101.9 million board feet of softwood, mainly pine (*12*). The hardwood component included 72.0 million board feet of oak, 35.4 million board feet of gum, and 87.2 million board feet of other hardwoods. Also, as of 1967, growing stock of all species totaled 136.8 million cubic feet, including 48.3 million cubic feet of softwood, mainly pine, and 88.5 million cubic feet of hardwood. The hardwood volume included 38.1 million cubic feet of oak, 22.2 million cubic feet of gum, and 28.2 million cubic feet of other hardwoods.

Also, as of 1967, the county's forests supported a total of 1,965,000 cords of growing stock, all species included. This volume included 644,000 cords of softwood, mainly pine, and 1,321,00 cords of hardwood. The hardwood volume included 569,000 cords of oak and 331,000 cords of other hardwoods.

As of 1966, the net annual growth of growing stock on the commercial forest land of Itawamba County was 10.3 million cubic feet, all species included (*12*). This volume included 5.5 million cubic feet of softwood, mainly pine, and 4.8 million cubic feet of hardwood. The hardwood volume included 2.5 million cubic feet of oak, 1.0 million cubic feet of gum, and 1.3 million cubic feet of other hardwoods.

Also, as of 1966, the net annual growth of sawtimber on the commercial forest land of the county was 23.6 million board feet for all species. This volume included 12.2 million board feet of softwood pine and 11.4 million board feet of hardwood. The hardwood component included 5.1 million board feet of oak, 1.0 million board feet of gum, and 5.3 million board feet of other hardwoods.

As of 1966, timber removal from growing stock on the commercial forest land of Itawamba County was 5.9 million cubic feet for all species (*13*). This volume included 2.5 million cubic feet of softwood, mainly pine, and 3.4 million cubic feet of hardwood. The hardwood volume included 1.7 million cubic feet of oak, 0.6 million cubic feet of gum, and 1.1 million cubic feet of other hardwoods.

Also, as of 1966, timber removal from sawtimber on the commercial forest land of the county was 22.4 million board feet for all species. This volume included 9.0 million board feet of softwood, mostly pine, and 13.4 million board feet of hardwood. The hardwood volume included 4.3 million board feet of oak, 2.4 million board feet of gum, and 6.7 million board feet of other hardwoods.

In 1972, 40,112 standard cords of round pulpwood were produced on the commercial forest land of Itawamba County (*16, 17*). Of this volume, 31,780 standard cords were softwood and 8,332 standard cords were hardwood. During the same year, saw log production amounted to 17,986,000 board feet. Of this volume, 3,867,000 board feet was softwood pine and 14,119,000 board feet was hardwood. Also in 1972, Itawamba County produced a total of 41,000 board feet of veneer-logs, including 33,000 board feet of softwood and 8,000 board feet of hardwood (*16*).

Itawamba County's commercial forest land and the tree crops harvested help to support a substantial timber economy. As of 1972, there were two large sawmills, each with an annual output of more than 3 million board feet, operating in the county, as well as three small sawmills, each with an annual capacity of less than 3 million board feet (*16, 18*). Wood-using industries and pulpwood yards in Itawamba County and adjoining counties procure and utilize some of the wood produced.

Besides furnishing raw material for the wood-using industries and affording employment for hundreds of industrial workers, the commercial forest land of Itawamba County provides food and shelter for wildlife and offers many users the opportunity for recreation. Moreover, this forest land provides watershed protection, helps to arrest soil erosion and reduce sedimentation, enhances the quality and value of water resources, and furnishes a limited amount of native forage for livestock.

Table 8 contains information useful to woodland owners or forest managers planning use of soils for wood crops. Map unit symbols for soils suitable for wood crops are listed, and the ordination (woodland suitability) symbol for each soil is given. All soils bearing the same ordination symbol require the same general kinds of woodland management and have about the same potential productivity (*10, 11*).

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: x, w, t, d, c, s, f, and r.

The third part of the symbol indicates the degree of hazards or limitations and the general suitability of the soils for certain kinds of trees. The three management problems considered are erosion hazard, equipment restrictions, and seedling mortality. The number 1 indicates soils that have no to slight management problems and are best suited to needleleaf trees; 2, soils that have one or more moderate management problems and are best suited to needleleaf trees; 3, soils that have one or more severe management problems and are best suited to needleleaf trees; 4, soils that have no to slight management problems and are best suited to broadleaf trees; 5, soils that have one or more moderate management problems and are best suited to broadleaf trees; 6, soils that have one or more severe management problems and are best suited to broadleaf trees; 7, soils that have no to slight management problems and are suited to either needleleaf or broadleaf trees; 8, soils that have one or more moderate management problems and are suitable for either needleleaf or broadleaf trees; 9, soils that have one or more severe management problems and are suitable for either needleleaf or broadleaf trees; and 0, soils that are not suitable for the production of major commercial wood products.

In table 8 the soils are also rated for a number of factors to be considered in management. *Slight*, *moderate*, and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade or grow if openings are made in the tree canopy. The invading plants compete with native plants or planted seedlings by impeding or preventing their growth. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* means that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

The *potential productivity* of merchantable or *important trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Important trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Engineering

J. R. CROUCH, engineer, Soil Conservation Service, assisted in the preparation of this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 9 shows, for each kind of soil, the degree and kind of limitations for building site development; table 10, for sanitary facilities; and table 12, for water management. Table 11 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 9. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 9 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock and slope are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 9 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, and shrink-swell potential are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding and slope affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 10 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, or *poor*, which, respectively, mean about the same as the terms *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Shallowness to bedrock interferes with installation. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is solid waste (refuse) and soil material that is placed in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 10 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty are better than other soils. Clayey soils may be sticky and difficult to spread.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 11 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 15 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, or wetness. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 11 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as chalk, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 15.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are low in content of gravel and have gentle slopes. They are low in soluble salts that can limit or prevent plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel or soluble salt.

Soils rated *poor* are very sandy soils and very firm clayey soils; soils with suitable layers less than 8 inches thick; soils having large amounts of gravel; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 12 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Organic matter in a soil downgrades the suitability of a soil for use in embankments, dikes, and levees.

Aquifer-fed excavated ponds are bodies of water made by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds that are fed by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Ratings in table 12 are for ponds that are properly designed, located, and constructed. Soil properties and site features that affect aquifer-fed ponds are depth to a permanent water table, permeability of the aquifer, quality of the water, and ease of excavation.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; alkalinity; and availability of outlets for drainage.

Irrigation is affected by such features as slope, susceptibility to flooding, hazards of water erosion and soil blowing, texture, depth of root zone, rate of water intake at the surface, permeability of the soil below the surface layer, available water capacity, need for drainage, and depth to the water table.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Grassed waterways are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

Recreation

Itawamba County has considerable potential for year-round outdoor recreation because of favorable climate and location. There are several small lakes, and more are to be created. Several parks and picnic and camping sites are being planned by the Corps of Engineers.

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 13 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 10, and interpretations for dwellings without basements and for local roads and streets, given in table 9.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, and are not subject to flooding during the period of use.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is firm after rains, and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes.

Wildlife habitat

HARVEY G. HUFFSTATLER, biologist, Soil Conservation Service, assisted in the preparation of this section.

All species of game animals and many nongame species of wildlife native to Mississippi are found in Itawamba County. The wide variety of habitat types accounts for this.

The quality and quantity of wildlife resources is directly related to the vegetation in an area. Kinds and amounts of vegetation are determined by soil characteristics and land use.

Openland wildlife habitat, which consists of areas of row crops and grassland, supports populations of doves, quail, cottontail, and songbirds. The major part of openland wildlife habitat in the county is primarily in the western part. The major crops grown are soybeans, cotton, pasture grasses, and legumes. Additional openland habitat is dispersed throughout the county in the more fertile stream bottoms and adjacent to the major transportation routes.

Woodland wildlife species are found throughout the entire county but reach peak populations in the heavily wooded eastern section. Woodland wildlife species commonly occurring here are deer, turkey, squirrel, raccoon, woodcock, and numerous songbirds. The heavily wooded flood plains of the Tombigbee River and Bull Mountain Creek provide excellent habitat for woodland wildlife. The mixed hardwood and pine upland areas provide habitat conditions of lower quality than the bottom lands.

Beaver ponds, natural lakes, streams, and manmade impoundments provide habitat suitable for wetland and riparian species. These are represented by waterfowl, fish, raccoon, mink, beaver, and muskrat.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 14, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of wildlife are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, and beggarweed.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of native plants are oak, poplar, cherry, sweetgum, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, or foliage used by wildlife or that provide cover and shade for some species of wildlife. Major soil properties that affect the growth of shrubs are depth of the root zone, available water capacity, and moisture. Examples of shrubs are deciduous holly and huckleberry.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, rushes, sedges, and reeds.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be

created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds (fig. 6).

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kinds of wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail, and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features, engineering test data, and data obtained from physical and chemical laboratory analyses of soils. The Federal Highway Administration, Department of Transportation, cooperated in making these tests.

Engineering properties

Table 15 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 15 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 15 in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (Unified) (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*1*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups are further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an addi-

tional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The estimated classification, without group index numbers, is given in table 15. Also in table 15, the percentage, by weight, of rock fragments more than three inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and plasticity index are estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterburg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

Table 16 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Soil and water features

Table 17 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding; and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Depth to bedrock is shown for all soils that are underlain by bedrock at a depth of 5 to 6 feet or less. For many soils, the limited depth to bedrock is a part of the definition of the soil series. The depths shown are based on measurements made in many soil borings and on other observations during the mapping of the soils. The kind of bedrock and its hardness as related to ease of excavation is also shown. Rippable bedrock can be excavated with a single-tooth ripping attachment on a 200-horsepower tractor, but hard bedrock generally requires blasting.

Morphology and classification of the soils

This section describes the soil series of the survey area, defines the current system of classifying soils, and classifies the soils of the area according to that system (*5*).

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (*3*). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. The soil is then compared to similar soils and to nearby soils of other series. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Harleston series

The Harleston series consists of moderately well drained soils that formed in loamy material.

The nearly level Harleston soils are in areas adjacent to the flood plains and on uplands. Slopes range from 0 to 2 percent.

Typical pedon of Harleston fine sandy loam, in an area just north of Delaney Branch on the north side of local road, 1/4 mile north of Fulton city limits, NW1/4SW1/4 sec. 24, T. 9 S., R. 8 E.:

Ap—0 to 3 inches; dark gray (10YR 4/1) fine sandy loam; weak fine granular structure; friable; many fine roots; very strongly acid; abrupt wavy boundary.

A2—3 to 9 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; friable; common fine roots; very strongly acid; clear wavy boundary.

B21t—9 to 16 inches; yellowish brown (10YR 5/6) loam; common medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; clear wavy boundary.

B22t—16 to 36 inches; yellowish brown (10YR 5/4) sandy loam with common medium distinct light gray (10YR 7/1) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; patchy clay films on faces of peds; few pockets of uncoated sand grains; very strongly acid; gradual wavy boundary.

B23t—36 to 48 inches; yellowish brown (10YR 5/4) sandy loam; common medium distinct light brownish gray (10YR 6/2) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B24t—48 to 55 inches; mottled light gray (10YR 7/1), yellowish brown (10YR 5/8), and reddish brown (5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B25t—55 to 70 inches; mottled light gray (10YR 7/1) and yellowish brown (10YR 5/8) loam; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid.

Thickness of the solum exceeds 60 inches. Reaction is strongly acid to extremely acid.

The Ap horizon is dark grayish brown, dark gray, or brown fine sandy loam or loam. The A2 horizon is dark grayish brown to pale brown fine sandy loam or loam. The Bt horizon is yellowish brown with light brownish gray and light gray mottles, and it is variegated in shades of yellow, brown and gray in the lower part. Texture ranges from sandy loam to loam.

The Harleston soils are associated with Pheba and Trebloc soils. Harleston soils are less silty than and do not have the fragipan that is characteristic of Pheba soils. Harleston soils are better drained than Trebloc soils.

Jena series

The Jena series consists of well drained soils that formed in loamy material.

The Jena soils are on flood plains throughout the county. Slopes range from 0 to 2 percent.

Typical pedon of Jena loam, east of local gravel road, NE1/4SW1/4 sec. 18, T. 9 S., R. 11 E.:

Ap—0 to 7 inches; brown (10YR 4/3) loam; weak fine granular structure; friable; very strongly acid; clear smooth boundary.

B21—7 to 16 inches; brown (10YR 5/3) silt loam; few fine faint pale brown mottles; weak fine subangular blocky structure; friable; very strongly acid; clear smooth boundary.

B22—16 to 24 inches; yellowish brown (10YR 5/4) silt loam; few fine faint pale brown mottles; weak medium subangular blocky structure; friable; few black splotches; very strongly acid; clear smooth boundary.

B23—24 to 30 inches; yellowish brown (10YR 5/4) loam; few fine faint pale brown mottles; weak medium subangular blocky structure; friable; few fine gravel; very strongly acid; clear smooth boundary.

C—30 to 55 inches; pale brown (10YR 6/3) sandy loam; common fine and medium distinct yellowish brown (10YR 5/8) mottles; structureless; friable; very strongly acid.

Thickness of the solum ranges from 20 to 50 inches. Reaction is strongly acid or very strongly acid.

The A horizon is dark brown, brown, or dark grayish brown fine sandy loam, silt loam, or loam. The B horizon is brown or yellowish brown loam, silt loam, or fine sandy loam. The C horizon is pale brown or yellowish brown, or it is variegated in shades of brown and yellow. The texture is fine sandy loam, sandy loam, and loamy fine sand.

Jena soils are associated with Kirkville, Mantachie, Mathiston, and Mooreville soils. Jena soils are better drained than these soils.

Kipling series

The Kipling series consists of somewhat poorly drained soils that formed in acid clay overlying chalk.

The Kipling soils are on ridgetops and side slopes. Slopes range from 2 to 12 percent.

Typical pedon of Kipling silty clay loam, 2 to 5 percent slopes, eroded, in an area north of old State Highway 45 to Dorsey, NE1/4SW1/4 sec. 36, T. 9 S., R. 7 E.:

Ap—0 to 3 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine granular structure; friable; slightly plastic; many fine roots; medium acid; clear wavy boundary.

B21t—3 to 6 inches; mottled yellowish red (5YR 4/6) and yellowish brown (10YR 5/8) clay; moderate medium subangular and angular blocky structure; firm, plastic, and sticky; common fine and medium roots; clay films on faces of peds; medium acid; clear wavy boundary.

B22t—6 to 20 inches; mottled red (2.5YR 4/8), yellowish brown (10YR 5/8), and light brownish gray (2.5Y 6/2) clay; moderate medium subangular and angular blocky structure; firm, very plastic, and very sticky; clay films on faces of peds; very strongly acid; clear wavy boundary.

B23t—20 to 33 inches; light brownish gray (2.5Y 6/2) clay; common medium distinct and prominent yellowish brown (10YR 5/6) and yellowish red (5YR 4/6) mottles; moderate medium subangular and angular blocky structure; firm, very plastic, and very sticky; clay films on faces of peds; many slickensides; very strongly acid; clear wavy boundary.

B3—33 to 51 inches; mottled light brownish gray (2.5Y 6/2), yellowish brown (10YR 5/8), and red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm, very plastic, and very sticky; clay films on faces of peds; intersecting slickensides; very strongly acid; gradual smooth boundary.

C—51 to 60 inches; light brownish gray (2.5Y 6/2) marly clay; common medium distinct yellowish brown (10YR 5/6) mottles; platy structure parting to weak medium subangular blocky; firm and very plastic; soft white lime accumulations and concretions; calcareous; moderately alkaline.

Thickness of the solum ranges from 25 to 55 inches. Reaction of the upper part of the solum ranges from medium acid to extremely acid, and that of the lower part of the solum and the C horizon ranges from very strongly acid to moderately alkaline.

The Ap horizon is dark grayish brown, brown, dark brown, or yellowish brown silt loam to silty clay loam. The B horizon is red or yellowish red with grayish mottles, or it is mottled in shades of brown, red, and gray. Some profiles have light brownish gray, light gray, and gray in the lower part of the B horizon. Texture is silty clay and clay. The clay content of the upper 20 inches of the B horizon ranges from 35 to 60 percent. The C horizon is yellowish brown, brownish yellow, light yellowish brown, yellow, and light brownish gray in the lower part, or light olive brown, and it is commonly mottled in shades of gray and white.

Many fine and coarse lime concretions and accumulations are in the C horizon.

Kipling soils are associated with Luverne and Sumter soils. Kipling soils differ from Luverne soils in being more mottled and in having a marly clay C horizon. Kipling soils are redder than Sumter soils and less alkaline than those soils in the upper part of the solum.

Kirkville series

The Kirkville series consists of moderately well drained soils that formed in loamy material. They are on flood plains. Slopes are 0 to 2 percent.

Typical pedon of Kirkville sandy loam, in an area of Jena-Kirkville association, in a wooded area west of State Highway 23, NW1/4SW1/4 sec. 8, T. 10 S., R. 10 E.:

A1—0 to 4 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21—4 to 18 inches; yellowish brown (10YR 5/4) silt loam; common medium faint pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; many fine roots; strongly acid; clear wavy boundary.

B22—18 to 24 inches; mottled yellowish brown (10YR 5/4) and light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear wavy boundary.

B23g—24 to 44 inches; gray (10YR 6/1) loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; strongly acid; gradual smooth boundary.

B24g—44 to 60 inches; gray (10YR 6/1) loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; strongly acid.

Thickness of the solum ranges from 30 to 60 inches. Reaction is strongly acid or very strongly acid.

The Ap horizon is brown to dark grayish brown sandy loam, loam, silt loam, or fine sandy loam. The upper part of the B horizon is yellowish brown to dark brown and has mottles in shades of gray. The lower part of the B horizon is yellowish brown with mottles in shades of gray and yellow, or it is gray with mottles. The B horizon is loam, silt loam, fine sandy loam, or sandy loam.

Kirkville soils are associated with Jena, Mantachie, Mathiston, and Mooreville soils. Kirkville soils differ from Jena soils in having grayish mottles in the upper part of the soil. Kirkville soils are not so gray and clayey as Mantachie soils, and they are not so clayey as Mathiston and Mooreville soils.

Leeper series

The Leeper series consists of somewhat poorly drained soils that formed in clayey alluvium on flood plains. Slopes are 0 to 2 percent.

Typical pedon of Leeper silty clay, in an area on the north side of Twenty Mile Creek approximately 20 yards east of State Highway 363, SW1/4NW1/4 sec. 16, T. 8 S., R. 8 E.:

Ap—0 to 9 inches; brown (10YR 4/3) silty clay; moderate medium subangular blocky structure; firm, plastic, and sticky; few fine and medium roots; moderately alkaline; clear smooth boundary.

B21—9 to 20 inches; dark grayish brown (10YR 4/2) silty clay; common fine distinct mottles of brown; moderate medium subangular blocky structure; very plastic and firm; few fine and medium roots; pressure faces on peds; mildly alkaline; clear wavy boundary.

B22g—20 to 50 inches; gray (5Y 5/1) silty clay; many coarse distinct mottles of brown (10YR 5/3) and strong brown (7.5YR 5/6); moderate medium subangular blocky structure; firm, very plastic, and sticky; few fine and medium roots; mildly alkaline.

Thickness of the solum ranges from 20 to 50 inches. Reaction is medium acid to moderately alkaline.

The Ap horizon is dark grayish brown, dark brown, or brown silty clay loam, silty clay, or clay. The upper part of the B horizon is dark grayish brown and has common to many grayish brown, grayish, and brownish mottles. The lower part of the B horizon has a matrix color of gray and has many mottles of yellow, brown, and red, or it may be variegated. Texture of the B horizon is silty clay, silty clay loam, or clay.

Leeper soils are associated with Marietta and Mantachie soils. Leeper soils are more clayey than Mantachie and Marietta soils.

Lexington series

The Lexington series consists of well drained soils that formed in loamy material high in silt.

The Lexington soils are on ridgetops. Slopes range from 2 to 5 percent.

Typical pedon of Lexington silt loam, 2 to 5 percent slopes, in an area just north of local blacktop road, NW1/4NW1/4 sec. 27, T. 10 S., R. 9 E.:

Ap—0 to 7 inches; dark brown (7.5YR 4/4) silt loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; abrupt smooth boundary.

B21t—7 to 28 inches; yellowish red (5YR 4/6) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of peds and lining pores; strongly acid; clear wavy boundary.

B22t—28 to 58 inches; red (2.5YR 4/6) clay loam; few fine distinct yellowish red and yellowish brown mottles; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; few black coats; strongly acid; clear wavy boundary.

B23t—58 to 84 inches; red (2.5YR 4/6) sandy clay loam; common medium faint yellowish red (5YR 5/6) mottles; weak fine and medium subangular blocky structure; friable; patchy clay films on faces of peds; few black concretions; strongly acid.

Thickness of the solum exceeds 60 inches. Reaction ranges from slightly acid to strongly acid.

The Ap horizon is yellowish red, brown, dark brown, or yellowish brown loam or silt loam. The Bt horizon is yellowish red or red. The upper part of the Bt horizon is silt loam, loam, clay loam, or silty clay loam. The lower part of the Bt horizon is loam, sandy clay loam, clay loam, or sandy loam. The upper 20 inches of the Bt horizon ranges from 25 to 35 percent clay.

Lexington soils are associated with Luverne, Ora, Savannah, and Smithdale soils. Lexington soils are less clayey and have a thicker B horizon than Luverne soils. Lexington soils differ from Ora and Savannah soils in not having a fragipan. In addition, Lexington soils are redder than Savannah soils. Lexington soils differ from Smithdale soils in being more silty.

The Lexington soils in this county contain slightly more sand in the upper part of the solum than the defined range for the Lexington series, but this difference does not alter their use and behavior.

Luverne series

The Luverne series consists of well drained soils that formed in clayey material overlying stratified soft shale and loamy material. The Luverne soils are on ridgetops and side slopes. Slopes range from 2 to 35 percent.

Typical pedon of Luverne fine sandy loam, 5 to 8 percent slopes, eroded, in an area on the north side of a local gravel road, SE1/4NE1/4 sec. 8, T. 10 S., R. 8 E.:

Ap—0 to 7 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; friable; many fine roots; very strongly acid; clear wavy boundary.

B21t—7 to 23 inches; red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; plastic and firm; continuous clay films on faces of peds; few flakes of mica; very strongly acid; gradual smooth boundary.

B22t—23 to 33 inches; red (2.5YR 4/6) clay; common medium faint and distinct yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm and plastic; clay films on faces of peds; few flakes of mica; very strongly acid; gradual wavy boundary.

B3—33 to 40 inches; red (2.5YR 4/6) sandy clay; common medium faint and distinct yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm and plastic; patchy clay films on faces of peds; common flakes of mica; few shale fragments; very strongly acid; gradual wavy boundary.

C—40 to 50 inches; mottled red (2.5YR 4/6), yellowish red (5YR 4/6), and yellowish brown (10YR 5/6) sandy clay loam; massive; firm; stratified layers of soft shale and sandy loam; common flakes of mica; very strongly acid.

Thickness of the solum ranges from 20 to 50 inches. Reaction is strongly acid to extremely acid.

The Ap horizon is yellowish brown, brown, or dark grayish brown sandy loam, fine sandy loam, or loamy sand. The B horizon is dominantly red but ranges to yellowish red. The lower part of this horizon has mottles in shades of brown and red. Texture of the B horizon is clay, clay loam, or sandy clay. Clay content of the upper 20 inches of the Bt horizon ranges from 35 to 50 percent. The C horizon is stratified sandy clay loam, sandy loam, and soft shale mottled in shades of red and gray.

Luverne soils are associated with Lexington, Kipling, Smithdale, and Sumter soils. Luverne soils are more clayey and have a thinner Bt horizon than Lexington and Smithdale soils. Luverne soils are more acid than Kipling and Sumter soils.

Mantachie series

The Mantachie series consists of somewhat poorly drained soils that formed in loamy material on flood plains. Slopes are 0 to 2 percent.

Typical pedon of Mantachie loam, in an area south of local road, 200 feet west of Mantachie Creek, NW1/4SW1/4 sec. 25, T. 8 S., R. 7 E.:

Ap—0 to 4 inches; brown (10YR 4/3) loam; weak fine granular structure; friable; many fine roots; strongly acid; clear wavy boundary.

A12—4 to 12 inches; brown (10YR 4/3) loam; few fine faint mottles of pale brown; weak fine granular and subangular blocky structure; friable; many fine roots; strongly acid; clear wavy boundary.

B1—12 to 18 inches; mottled yellowish brown (10YR 5/4), grayish brown (10YR 5/2), and strong brown (7.5YR 5/6) loam; weak fine and medium subangular blocky structure; friable; few fine roots; strongly acid; clear wavy boundary.

B21g—18 to 26 inches; gray (10YR 6/1) loam; common medium distinct dark grayish brown (10YR 4/2) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few black concretions; strongly acid; clear wavy boundary.

B22g—26 to 38 inches; gray (10YR 5/1) loam; many medium faint and distinct light gray (10YR 7/1), yellowish brown (10YR 5/4), and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine brown and black concretions; strongly acid; clear wavy boundary.

B23g—38 to 52 inches; gray (10YR 5/1) loam; few medium faint light gray (10YR 7/1) and distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; many brown concretions; strongly acid; clear wavy boundary.

B24g—52 to 64 inches; gray (10YR 5/1) loam; many medium distinct yellowish brown (10YR 5/4) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine brown concretions; strongly acid.

Thickness of the solum is more than 60 inches. Reaction is strongly acid or very strongly acid.

The Ap horizon is dark grayish brown, yellowish brown, and brown fine sandy loam, loam, sandy loam, or silt loam. The upper part of the B horizon is mottled in shades of brown, gray, and yellow. The lower part of the B horizon is gray and has mottles in shades of gray and brown. Texture is loam, sandy clay loam, or clay loam.

Mantachie soils are associated with Jena, Kirkville, Leeper, Marietta, and Mathiston soils. Mantachie soils are not so brown as Jena and Kirkville soils and are more clayey than these soils. Mantachie soils are not so clayey as Leeper soils. Mantachie soils are more acid than Marietta soils but are more sandy than Mathiston soils.

Marietta series

The Marietta series consists of moderately well drained soils on flood plains. These soils formed in loamy material. Slopes are 0 to 2 percent.

Typical pedon of Marietta loam, in an area 2 miles east of Lee County, 1/2 mile north of U.S. Highway 78, 45 feet west of local road, NE1/4NE1/4 sec. 36, T. 9 S., R. 7 E.:

Ap—0 to 6 inches; brown (10YR 4/3) loam; weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.

B21—6 to 12 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine and medium subangular blocky structure; friable; few fine roots; mildly alkaline; clear smooth boundary.

B22—12 to 18 inches; yellowish brown (10YR 5/4) clay loam; common fine distinct strong brown and light gray mottles; moderate medium subangular blocky structure; firm; few fine roots; mildly alkaline; clear smooth boundary.

B23g—18 to 33 inches; mottled gray (10YR 6/1), yellowish brown (10YR 5/4), and strong brown (7.5YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; firm; few fine roots; common fine black and brown concretions; neutral; diffuse boundary.

B3g—33 to 55 inches; gray (10YR 6/1) loam; many coarse distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) mottles; weak fine and medium subangular blocky structure; friable; common fine black and brown concretions; neutral.

Thickness of solum ranges from 30 to 60 inches. Reaction ranges from medium acid to mildly alkaline.

The Ap horizon is brown, dark brown, yellowish brown, or grayish brown loam, fine sandy loam, or silt loam. The upper part of the B horizon is yellowish brown, brown, or dark brown and has grayish and brownish mottles. The lower part of the B horizon and the C horizon are gray or light gray and have brownish mottles, or they are variegated in colors of gray, brown, and yellow. Textures of the B and C horizons are silty clay loam, loam, sandy clay loam, or clay loam.

Marietta soils are associated with Leeper and Mantachie soils. Marietta soils are less clayey than Leeper soils. Marietta soils are less acid and better drained than Mantachie soils.

Mathiston series

The Mathiston series consists of somewhat poorly drained soils on flood plains. They formed in silty alluvium. Slopes are 0 to 2 percent.

Typical pedon of Mathiston silt loam, in an area south of a local gravel road, on the east side of Donovan Creek, NW1/4SW1/4 sec. 2, T. 8 S., R. 8 E.:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; very strongly acid; clear wavy boundary.

B21—7 to 16 inches; brown (10YR 5/3) silt loam; few fine faint yellowish red mottles; weak fine granular and subangular blocky structure; friable; few fine roots; very strongly acid; clear wavy boundary.

B22g—16 to 32 inches; gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6)

mottles; weak medium subangular blocky structure; friable; few fine brown and black concretions; very strongly acid; gradual wavy boundary.

B23g—32 to 60 inches; gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; firm; few fine brown and black concretions; very strongly acid.

Thickness of the solum is 60 inches or more. Reaction is strongly acid or very strongly acid.

The Ap horizon is brown, dark brown, or very dark grayish brown loam or silt loam. The B21 horizon is mottled in shades of brown, yellow, and gray, or it is brown and has grayish mottles. The Bg horizon is gray and has mottles in shades of brown and yellow. Texture of the B horizon is loam, silty clay loam, or silt loam.

Mathiston soils are associated with Jena, Kirkville, and Mantachie soils. Mathiston soils are grayer and more poorly drained than Jena and Kirkville soils. Mathiston soils are not so sandy as Kirkville and Mantachie soils.

Mooreville series

The Mooreville series consist of moderately well drained soils on flood plains. They formed in loamy material. Slopes are 0 to 2 percent.

Typical pedon of Mooreville loam, in an area of Kirkville, Mantachie and Mooreville soils, in a wooded area one mile west of Mississippi Highway 25, on north side of Bean's Ferry Road, on east side of Tombigbee River, SW1/4SW1/4 sec. 18, T. 10 S., R. 9 E.:

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) loam; many fine distinct yellowish brown mottles; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21—5 to 29 inches; dark yellowish brown (10YR 4/4) clay loam; few fine distinct light brownish gray mottles; moderate medium subangular blocky structure; firm and plastic; common fine roots; very strongly acid; clear smooth boundary.

B22—29 to 40 inches; yellowish brown (10YR 5/6) clay loam; common medium distinct yellowish red (5YR 5/6) and light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm and plastic; very strongly acid; gradual smooth boundary.

B23—40 to 50 inches; mottled yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; firm and plastic; very strongly acid; gradual smooth boundary.

C—50 to 60 inches; mottled yellowish brown (10YR 5/6), light brownish gray (10YR 6/2), and strong brown (7.5YR 5/6) loam; massive; firm; few black medium coatings and concretions; very strongly acid.

Thickness of the solum is 40 to more than 60 inches. Reaction of the soil is strongly acid or very strongly acid.

The A horizon is very dark grayish brown, dark grayish brown, or brown loam, silt loam, clay loam, or fine sandy loam. The B horizon is dark yellowish brown or yellowish brown and has few to common mottles in shades of gray and yellowish red. Texture is clay loam, loam, or sandy clay loam. Few to many black coatings and concretions are in the lower part of the B horizon. The C horizon is mottled in shades of yellowish brown, brown, and gray. Texture is loam, sandy loam, or sandy clay loam.

Mooreville soils are associated with Jena and Kirkville soils. They have a more clayey B horizon than the Jena and Kirkville soils and are browner and better drained than the Kirkville soils.

Ora series

The Ora series consists of moderately well drained soils that have a fragipan. These soils formed in thick loamy material on ridgetops and side slopes. Slopes range from 2 to 12 percent.

Typical pedon of Ora fine sandy loam, 5 to 8 percent slopes, eroded, in a 10-acre delineation just west of a local factory and west of the railroad going to the factory, SE1/4SW1/4 sec. 36, T. 9 S., R. 8 E.:

Ap—0 to 5 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

B21t—5 to 14 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

B22t—14 to 22 inches; yellowish red (5YR 4/6) loam; moderate medium subangular blocky structure; friable; few fine roots; few black splotches; patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

Bx1—22 to 36 inches; yellowish red (5YR 4/6) loam; few fine faint and prominent red and light gray mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact, and brittle; patchy clay films on faces of peds; few black coats; very strongly acid; clear wavy boundary.

Bx2—36 to 56 inches; mottled yellowish red (5YR 4/6), red (2.5YR 4/6), and light gray (10YR 7/2) sandy loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, brittle, and compact; very strongly acid.

Depth to the fragipan ranges from 18 to 30 inches. Reaction is strongly acid or very strongly acid.

The Ap horizon is grayish brown to yellowish brown sandy loam, silt loam, loam, or fine sandy loam. The Bt horizon is yellowish red to red sandy clay loam, loam, clay loam, or fine sandy loam. The Bx horizon has a matrix color of yellowish red and has mottles of red, brown, yellow, and gray, or it is variegated in these colors. Texture is loam, sandy loam, or sandy clay loam. Fine and medium concretions and coatings of black and brown range from few to common.

Ora soils are associated with Lexington, Savannah, Smithdale, and Sumter soils. Ora soils differ from Lexington and Smithdale soils in having a fragipan. Ora soils have a redder Bt horizon than Savannah soils. Ora soils differ from Sumter soils in being more acid, having a fragipan, and being less clayey.

Pheba series

The Pheba series consists of somewhat poorly drained soils that have a fragipan. These soils formed in loamy material on ridgetops and uplands. Slopes range from 0 to 2 percent.

Typical pedon of Pheba silt loam, in an area of pasture, on the north side of a local gravel road west of Browns Creek, SE1/4SW1/4 sec. 35, T. 7 S., R. 8 E.:

Ap—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine roots; very strongly acid; clear wavy boundary.

B2—3 to 14 inches; pale brown (10YR 6/3) silt loam; common medium faint and distinct light brownish gray (10YR 6/2) and strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; many fine roots; few wormcasts; very strongly acid; clear wavy boundary.

A'2&B—14 to 21 inches; mottled yellow (10YR 7/6), light brownish gray (10YR 6/2), and yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; slightly brittle; few fine roots; many fine pores; very strongly acid; gradual wavy boundary.

B'x1—21 to 28 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct mottles of light brownish gray (10YR 6/2) and yellow (10YR 7/6); weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact, and brittle;

patchy clay films; few fine roots on faces of prisms and peds; many fine voids; very strongly acid; clear wavy boundary.

B'x2—28 to 61 inches; mottled light brownish gray (10YR 6/2), light gray (10YR 7/1), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/6) loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm, compact, and brittle; few voids; few fine roots on prisms; few patchy clay films on faces of prisms and peds; very strongly acid; gradual wavy boundary.

B'x3—61 to 80 inches; mottled light gray (10YR 7/1), yellow (10YR 7/6), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/6) loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; compact and brittle; few patchy clay films; very strongly acid.

Depth to the fragipan ranges from 14 to 24 inches. Reaction is strongly acid to extremely acid.

The Ap horizon is dark grayish brown, grayish brown, or yellowish brown silt loam, loam, or fine sandy loam. The B2 horizon ranges from pale brown to olive yellow and has grayish mottles. The A'2&B horizon is mottled in shades of gray, yellow, and brown. Texture is silt loam or loam. Between a depth of 10 inches and the upper boundary of the fragipan, clay content is 10 to 18 percent. The B'x horizon is mottled in shades of light brownish gray, yellowish brown, strong brown, and yellow. Texture is silt loam, loam, or silty clay loam.

The Pheba soils are assocated with Harleston, Savannah, and Trebloc soils. Pheba soils are not so sandy as Harleston soils and they are not so well drained as the Savannah soils. Pheba soils differ from Trebloc soils in having a browner B horizon and a fragipan.

Saffell series

The Saffell series consists of well drained, gravelly, upland soils. These soils formed in loamy and gravelly material. Slopes range from 8 to 45 percent.

Typical pedon of Saffell gravelly sandy loam, 8 to 45 percent slopes, in an area on south side of local road, SW1/4SE1/4 sec. 19, T. 9 S., R. 11 E.:

Ap—0 to 4 inches; brown (10YR 4/3) gravelly sandy loam; weak fine granular structure; friable; many fine roots; about 15 percent by volume of quartz pebbles; strongly acid; clear smooth boundary.

B21t—4 to 14 inches; yellowish red (5YR 4/6) gravelly sandy clay loam; weak fine subangular blocky structure; friable; sand grains coated and bridged with clay; about 40 percent by volume of quartz pebbles; very strongly acid; clear smooth boundary.

B22t—14 to 30 inches; yellowish red (5YR 4/6) gravelly sandy clay loam; moderate fine subangular blocky structure; friable; about 50 percent by volume of quartz pebbles; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

B3—30 to 40 inches; reddish yellow (5YR 6/6) gravelly fine sandy loam; weak fine subangular blocky structure; friable; about 60 percent by volume of pebbles; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

C—40 to 60 inches; yellowish red (5YR 5/6) gravelly sandy loam; massive; friable; about 80 percent by volume of pebbles; strongly acid.

Thickness of the solum ranges from 35 to 60 inches. Reaction is strongly acid or very strongly acid.

The Ap horizon is dark grayish brown, brown, or yellowish brown gravelly fine sandy loam, sandy loam, or loamy fine sand. Pebbles in this layer range from few to many. The Bt horizon ranges from strong brown to red and is gravelly loam, fine sandy loam, or sandy clay loam. Volume of pebbles in this layer ranges from 35 to 60 percent. The lower part of the B horizon and the C horizon are about 60 to 80 percent gravel and have some soil particles between the pebbles. Texture of these soil particles is generally gravelly sandy loam or gravelly loam.

The Saffell soils are associated with Smithdale soils. Saffell soils differ from Smithdale soils in having more gravel.

Savannah series

The Savannah series consists of moderately well drained soils that have a fragipan. They formed in loamy material on ridgetops and uplands. Slopes range from 0 to 5 percent.

Typical pedon of Savannah loam, 2 to 5 percent slopes, in a 10-acre delineation approximately 30 feet east of local road, SW1/4NW1/4 sec. 5, T. 8 S., R. 8 E.:

Ap—0 to 6 inches; yellowish brown (10YR 5/4) loam; weak fine granular structure; friable; many fine roots and few worm channels; strongly acid; clear smooth boundary.

B21t—6 to 25 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

Bx1—25 to 35 inches; mottled strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), and light brownish gray (10YR 6/2) loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact, and brittle; few fine roots in seams between prisms; common fine voids; common fine brown concretions; very strongly acid; gradual smooth boundary.

Bx2—35 to 50 inches; mottled yellowish red (5YR 5/6), light brownish gray (10YR 6/2), and yellowish brown (10YR 5/6) loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact, and brittle; few fine roots in seams between prisms; few fine voids; patchy clay films on faces of peds; gray seams less than 1 inch wide between prisms; very strongly acid; gradual smooth boundary.

Bx3—50 to 65 inches; mottled light brownish gray (10YR 6/2), yellowish red (5YR 4/8), and yellowish brown (10YR 5/6) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact, and brittle; seams of light gray between prisms; clay films on faces of peds; very strongly acid.

Depth to the fragipan ranges from 16 to 30 inches. Reaction is strongly acid or very strongly acid.

The Ap horizon is pale brown, brown, yellowish brown, or dark grayish brown fine sandy loam, loam, silt loam, or sandy loam.

The Bt horizon is yellowish brown to strong brown. The Bx horizon is dominantly mottled in shades of yellow, brown, gray, and red. Texture of the Bt and Bx horizons is heavy sandy loam, sandy clay loam, silty clay loam, light clay loam, or loam.

The Savannah soils are associated with Lexington, Ora, and Pheba soils. Savannah soils are less red than Ora soils. Savannah soils differ from Lexington soils in having a fragipan and being less red. Savannah soils are better drained than Pheba soils.

Smithdale series

The Smithdale series consists of well drained soils that formed in loamy material. These soils are on ridgetops and side slopes. Slopes range from 5 to 35 percent.

Typical pedon of Smithdale fine sandy loam, 5 to 8 percent slopes, eroded, in a 75-acre delineation approximately 100 feet west of State Highway 25, SE1/4SW1/4 sec. 11, T. 9 S., R. 9 E.:

Ap—0 to 6 inches; dark brown (7.5YR 4/4) fine sandy loam; weak fine granular structure; friable; many fine roots; very strongly acid; abrupt wavy boundary.

B21t—6 to 20 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—20 to 30 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; common fine black coats; very strongly acid; gradual wavy boundary.

B23t—30 to 45 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; clear wavy boundary.

B24t—45 to 62 inches; red (2.5YR 4/6) sandy loam with common pockets of reddish yellow (5YR 6/8); weak medium subangular blocky structure; friable; red peds of sandy clay loam; pockets of uncoated sand grains; very strongly acid; gradual wavy boundary.

B25t—62 to 85 inches; red (2.5YR 4/6) sandy loam; few pockets of reddish yellow (5YR 6/8) fine sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

Thickness of the solum is more than 60 inches. Reaction is strongly acid or very strongly acid.

The Ap horizon is light yellowish brown, yellowish brown, brown, or dark brown fine sandy loam or sandy loam. The Bt horizon is yellowish red or red loam, sandy clay loam, clay loam, or sandy loam. Clay content of the upper 20 inches of the Bt horizon ranges from 18 to 33 percent. The lower part of the Bt horizon has few to many pockets of uncoated sand grains and of sandy clay loam.

Smithdale soils are associated with Lexington, Luverne, Ora, and Saffell soils. Smithdale soils differ from Lexington soils in having less silt in the upper part of the solum. They have a less clayey B horizon than Luverne soils. Smithdale soils differ from Ora soils in not having a fragipan. They differ from Saffell soils in containing less gravel.

Sumter series

The Sumter series consists of well drained soils on uplands. These soils formed in calcareous clayey material. Slopes range from 8 to 17 percent.

Typical pedon of Sumter silty clay, 8 to 17 percent slopes, eroded, in an area approximately 660 yards north of Highway 78, SW1/4SE1/4 sec. 26, T. 9 E., R. 7 E.:

Ap—0 to 4 inches; olive (5Y 5/3) silty clay; moderate fine and medium granular structure; friable and plastic; calcareous; moderately alkaline; clear smooth boundary.

B1—4 to 14 inches; mottled light yellowish brown (2.5Y 6/4) and pale olive (5Y 6/3) silty clay; moderate fine and medium granular structure; friable and plastic; few fine soft lime nodules; calcareous; moderately alkaline; clear smooth boundary.

B2—14 to 22 inches; pale olive (5Y 6/4) silty clay; few distinct coarse light yellowish brown (2.5Y 6/4) mottles; moderate fine and medium angular blocky structure; hard and firm; many white lime nodules; calcareous; moderately alkaline; gradual smooth boundary.

B3—22 to 33 inches; pale olive (5Y 6/4) silty clay; common medium distinct light olive gray (5Y 6/2) mottles; moderate fine and medium angular blocky structure; hard and firm; calcareous; moderately alkaline; gradual wavy boundary.

C1—33 to 48 inches; light yellowish brown (2.5Y 6/4) marly clay streaked and splotched with yellowish brown; platy; hard, firm, and plastic; calcareous; moderately alkaline; gradual wavy boundary.

C2—48 to 60 inches; mottled light brownish gray (2.5Y 6/2) and olive yellow (2.5Y 6/6) chalk; platy; very firm; calcareous; moderately alkaline.

Thickness of the solum ranges from 20 to 40 inches. Reaction is moderately alkaline or mildly alkaline, and the soil is calcareous.

The Ap horizon is very dark grayish brown, olive gray, or olive silty clay loam, silty clay, or clay. The B horizon is olive, pale olive, pale yellow, or light yellowish brown silty clay or clay. Clay content of the B horizon ranges from 35 to 55 percent. The C horizon is gray, olive gray, or pale yellow, platy chalk.

Sumter soils are associated with Kipling, Luverne, and Ora soils, and they are calcareous and more alkaline than these associated soils.

Trebloc series

The Trebloc series consists of poorly drained soils that formed in loamy material. Slopes are 0 to 2 percent.

Typical pedon of Trebloc silt loam, in an area just east of the Lee County line, south of local gravel road, NW1/4SW1/4 sec. 11, T. 10 S., R. 7 E.:

A1—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; abrupt wavy boundary.

A21g—5 to 9 inches; light brownish gray (10YR 6/2) silt loam; common fine distinct brown mottles; weak medium granular structure; friable; common medium roots; few brown concretions; very strongly acid; clear wavy boundary.

B21tg & A2—9 to 19 inches; gray (10YR 6/1) silty clay loam; common medium distinct mottles of yellowish brown (10YR 5/8); weak medium subangular blocky structure; friable; brown and black splotches; few roots; very strongly acid; clear wavy boundary.

B22tg—19 to 32 inches; gray (10YR 5/1) clay loam; many medium distinct mottles of strong brown (7.5YR 5/6); moderate medium subangular blocky structure; firm and slightly compact; few fine roots; patchy clay films on faces of peds; few tongues and pockets of gray silt loam; very strongly acid; gradual wavy boundary.

B23tg—32 to 43 inches; gray (10YR 5/1) clay loam; common medium distinct mottles of strong brown (7.5YR 5/6); moderate medium subangular blocky structure; firm and plastic; few fine roots; nearly continuous clay films on faces of peds; few tongues and pockets of gray silt loam; very strongly acid; gradual wavy boundary.

B24tg—43 to 57 inches; gray (10YR 5/1) clay loam; few fine distinct yellow mottles; moderate medium subangular blocky structure; plastic and firm; patchy clay films on faces of peds; very strongly acid.

B25tg—57 to 65 inches; mottled gray (10YR 5/1), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/8) loam; weak fine and medium subangular blocky structure; friable; very strongly acid.

Solum thickness ranges from 60 to more than 80 inches. Soil reaction is strongly acid or very strongly acid.

The A horizon is grayish brown, brown, or dark grayish brown fine sandy loam, loam, very fine sandy loam, or silt loam. The A21g horizon is gray, or light brownish gray silt loam, loam, or fine sandy loam. The B2tg horizon is light gray, gray, or light brownish gray and has mottles in shades of yellow and brown. Texture is loam, silty clay loam, silt loam, or clay loam. Clay content of the upper 20 inches of the B horizon ranges from 18 to 30 percent.

Trebloc soils are associated with Pheba and Harleston soils. Trebloc soils are grayer and are more poorly drained than the Harleston and Pheba soils.

In this county the Trebloc soils have slightly higher sand content in the upper part of the B horizon than the defined range for the Trebloc series, but this difference does not alter their use and behavior.

Classification of the soils

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Readers interested in further details about the system should refer to "Soil taxonomy" (*19*).

The system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 18, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udults (*Ud*, meaning moist but not wet, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Hapludults (*Hapl*, meaning simple horizons, plus *udults*, the suborder of Ultisols that have an illuvial horizon of silicate clay and low base saturation).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is clayey, mixed, thermic Typic Hapludults.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Formation of the soils

This section discusses the factors and processes of soil formation.

Factors of soil formation

The five major factors of soil formation are living organisms, parent material, climate, relief, and time. All of these factors affect the formation of the soil. The relative importance of a particular factor differs from place to place.

The five soil forming factors are interdependent. Each modifies the effects of the others. Climate and living organisms are the active factors of soil formation. They act on parent material and gradually change it into a natural body that has genetically related horizons. Relief largely controls runoff and, therefore, modifies the effects of climate and vegetation. Finally, time is needed to change parent material into a soil. The length of time needed for horizon differentiation may differ but some time is always required.

Living organisms

Plants, earthworms, insects, and other organisms that live on or in the soil have an active part in soil formation. The plants and animals play an extremely important part in the development of soils. Some plants and animals tend to encourage the growth of certain plants but destroy others. Animals burrow beneath the surface and mix the soil.

Native vegetation in the survey area consisted of oak-hickory forest type on the uplands and the flood plains, primarily oak, gum, and beech trees with a dense understory of vines and cane. Organic matter has been rapidly reduced by aerobic organisms in most soils in the hilly part of the county.

Most of the living organisms in the soils of this county are plants, but there are also small animals. The plants include algae, fungi, actinomyces and other bacteria, and higher plants. The small animals inlcude springtails, millipedes, sowbugs, mites, earthworms, nematodes, protozoa, rotifers, and many others.

The existence of these organisms depends largely on the soil conditions and the food supply. The number of organisms constantly fluctuates because of multiplication and death.

The complex of living organisms affecting soil genesis in Itawamba County has been drastically changed by man's activity. The clearing of forests, cultivation of fields, introduction of new plant species, and drainage of wet areas will affect the direction and rate of soil formation in the future.

Parent material

Water from the Gulf of Mexico covered the valley of the Mississippi River as far north as Cairo, Illinois during the late Mesozoic and early Cenozoic Eras. The entire state of Mississippi was covered, except for small areas of Tishomingo County. Sands, silts, clays, and calcareous formations were the sediments that remained when the water receded.

The unconsolidated and, in places, consolidated mass in which the soils formed is called parent material. It is strongly related to the chemical and mineralogical composition of the soil. The parent material of Itawamba County consists of marine deposits, alluvium, and loess.

All of the upland part of the county formed in noncalcareous marine deposits, except for a small area of soils in the extreme west-central section of the county that formed in calcareous deposits. The alluvium consists of sandy to clayey sediment.

Most of the soils that formed on the smoother parts of the uplands and on older stream terraces have a well defined soil profile. These soils have an A horizon and a B horizon that has an accumulation of silicate clay. The Lexington, Luverne, and Smithdale soils are examples.

The soils that formed on the flood plains are more recent and have not developed into mature soils. These soils have an A horizon and a B horizon that has been altered but which does not have an accumulation of silicate clay. Jena and Mantachie soils are examples.

Climate

The climate of Itawamba County is of the humid, warm temperature, continental type. It is characterized by rather warm summers and mild winters. The average temperature and normal rainfall distribution for the county are given in table 1.

The warm moist air that prevails most of the year favors rapid chemical changes. The relatively high precipitation leaches the bases and other soluble materials and promotes the translocation of colloidal matter and other less soluble materials.

Climate is the direct or indirect cause of variations in the kinds of plant and animal life and of the major differences that these variations have brought about in the development of soils. In the warm, humid climate of Itawamba County, the more mature soils have been highly leached and the geologically young soils are being leached. Because the soils are frozen for only short periods during winter, translocation and leaching proceed without interruption throughout most of the year.

Relief

Soils of Itawamba County range from nearly level to steep. As a factor of soil formation, relief modifies the effects of climate and vegetation.

On some steep slopes runoff is so great that soil formation occurs slowly. On these steep slopes the quantity of water that percolates through the soil and the quantity of material leached and washed through the profile are small.

In the nearly level areas and depressions where the water table is high, soils are likely to be wet and gray. A fragipan has developed in many of the soils on broad, nearly level slopes. As the gradient of the slope increases, the thickness of the fragipan generally decreases. A pan rarely develops in soils that have slope of more than 12 percent.

Time

A long period of time is required for soil formation. Differences in the length of time account for most of the soil differences that are not attributed to other factors of soil formation. Soils along the streams are the youngest in the county. Older soils have a greater degree of horizon differentiation than the young ones. The soils on the uplands are the oldest in the county.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single mapping unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	More than 9

Base saturation. The degree to which material having base exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures is difficult.

Complex, soil. A mapping unit of two or more kinds of soil occurring in such an intricate pattern that they cannot be shown separately on a soil map at the selected scale of mapping and publication.

Compressible. Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cutbanks cave. Unstable walls of cuts made by earthmoving equipment. The soil sloughs easily.

Depth to rock. Bedrock at a depth that adversely affects the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

Erosion. The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Excess alkali. Excess exchangeable sodium. The resulting poor physical properties restrict the growth of plants.

Excess fines. Excess silt and clay. The soil does not provide a source of gravel or sand for construction purposes.

Favorable. Favorable soil features for the specified use.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, and common (occasional and frequent). *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions and *common* that it is likely under normal conditions; *occasional* means that flooding occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May*, for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer, fresh and decaying plant residue, at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming at or near the surface, in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon most of which was originally part of a B horizon.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. Inadequate strength for supporting loads.

Miscellaneous areas. Areas that have little or no natural soil, are too nearly inaccessible for orderly examination, or cannot otherwise be feasibly classified.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly. The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Phase, soil. A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its management. A soil series, for example, may be divided into phases on the bases of differences in slope, stoniness, thickness, or some other characteristic that affects management. These differences are too small to justify separate series.

pH value. (See Reaction, soil). A numerical designation of acidity and alkalinity in soil.

Piping. Moving water of subsurface tunnels or pipelike cavities in the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from a semisolid to a plastic state.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Poorly graded. Refers to soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rooting depth. Shallow root zone. The soil is shallow over a layer that greatly restricts roots. See Root zone.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Seepage. The rapid movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon.

Series, soil. A group of soils, formed from a particular type of parent material, having horizons that, except for the texture of the A or surface horizon, are similar in all profile characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineralogical and chemical composition.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake. The slow movement of water into the soil.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use or management.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly to a prepared outlet without harm. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea. A stream terrace is frequently called a second bottom, in contrast with a flood plain, and is seldom subject to overflow. A marine terrace, generally wide, was deposited by the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer. Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil (engineering). Presumably a fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Unstable fill. Risk of caving or sloughing in banks of fill material.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Illustrations

Figure 1.—Flooding on Jena-Kirkville association after prolonged spring rains.

Figure 2.—A stand of loblolly pine trees on Kipling silty clay loam, 5 to 8 percent slopes, eroded.

Figure 3.—Bahiagrass hay being harvested on Lexington silt loam, 2 to 5 percent slopes.

Figure 4.—Loblolly pine trees on Smithdale fine sandy loam, 5 to 8 percent slopes, eroded, to be harvested for pulpwood.

Figure 5.—Erosion on Smithdale fine sandy loam, 8 to 17 percent slopes.

Figure 6.—A nesting box for wood ducks being installed in a beaver impoundment. The metal sheet around the tree trunk below the box protects the nest from predators, such as snakes and raccoons.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

Month	Temperature[1]						Precipitation[1]				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--[2] Maximum temperature higher than--	2 years in 10 will have--[2] Minimum temperature lower than--	Average number of growing degree days[3]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	53.8	34.4	44.1	74	0	0	5.87	3.10	7.96	7	1.4
February---	56.2	36.6	46.4	79	12	0	5.50	3.04	7.97	7	.4
March------	64.5	42.7	53.6	86	17	112	6.95	4.05	8.01	7	.1
April------	73.7	51.3	62.5	90	32	375	3.89	3.28	6.22	7	.0
May--------	82.8	59.9	71.3	95	38	660	3.82	2.36	5.47	7	.0
June-------	90.8	68.1	79.5	100	55	885	3.87	2.03	5.51	5	.0
July-------	92.2	71.0	81.6	99	56	980	4.51	2.58	5.29	8	.0
August-----	92.5	70.1	81.3	101	55	970	2.88	1.38	4.40	6	.0
September--	86.9	63.2	75.0	96	43	750	3.02	1.40	4.25	5	.0
October----	77.8	51.2	64.5	91	32	450	2.84	.98	3.73	3	.0
November---	63.2	40.9	52.0	82	17	60	4.50	2.13	6.48	6	.1
December---	55.1	36.0	45.6	65	5	0	5.36	2.61	6.60	7	.2
Year-----	74.1	52.1	63.1	100	5	5,242	53.01	43.46	58.88	75	2.2

[1]Recorded in the period 1931-52 at Tupelo, Mississippi.

[2]Based on data for a 10 year period 1950-60.

[3]A growing degree day is an index of the amount of heat available for plant growth. It can be calculated by using the average daily temperature, subtracting the temperature below which growth is minimal for the principal crops in the area (50° F), and multiplying the remainder by the number of days in the month.

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature[1]		
	24°F or lower	28°F or lower	32°F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 8	March 28	April 17
2 years in 10 later than--	March 1	March 21	April 10
5 years in 10 later than--	February 15	March 7	March 27
First freezing temperature in fall:			
1 year in 10 earlier than--	November 13	October 26	October 18
2 years in 10 earlier than--	November 19	November 1	October 24
5 years in 10 earlier than--	December 1	November 12	November 4

[1]Recorded in the period 1931-52 at Tupelo, Mississippi.

TABLE 3.--GROWING SEASON LENGTH

Probability	Daily minimum temperature during growing season[1]		
	Higher than 24°F	Higher than 28°F	Higher than 32°F
	Days	Days	Days
9 years in 10	250	222	194
8 years in 10	261	223	197
5 years in 10	289	250	222
2 years in 10	306	274	235
1 year in 10	312	305	263

[1]Data recorded at Tupelo, Mississippi. Growing season length for 9, 8, and 5 years in 10 determined for the period 1931-52. Growing season length for 1 and 2 years in 10 determined for the period 1950-60.

TABLE 4.--MAP UNITS AND THEIR POTENTIALS

Map Unit	Percent of county	Cultivated farm crops	Pasture and hay	Woodland	Urban uses	Extensive recreation areas
1. Jena-Kirkville-Mantachie	5	Low: floods.	Low: floods.	Very high	Low: floods.	Low: floods.
2. Kirkville-Mantachie-Mooreville	6	Low: floods.	Low: floods.	Very high	Low: floods.	Low: floods.
3. Leeper-Marietta	1	High	High	Very high	Low: shrink-swell	Low: floods.
4. Mantachie	6	High	High	Very high	Low: floods.	Low: floods.
5. Mantachie-Marietta	2	High	High	Very high	Low: floods.	Low: floods.
6. Ora-Kipling-Sumter	2	Medium to low: slope, clayey.	Medium: slope, clayey.	High to low: clayey, calcareous.	Low to medium: shrink-swell	Medium: clayey.
7. Ora-Savannah-Pheba	11	High: wetness.	High	Moderately high	Medium: low strength	High.
8. Smithdale	29	Low: slope.	Low: slope.	Moderately high	Low: slope.	Medium: slope.
9. Smithdale-Lexington	8	Medium: slope.	Low to high: slope.	Moderately high	Low to high: slope.	Medium: slope.
10. Smithdale-Luverne	30	Low: slope.	Low: slope.	Moderately high	Low: slope.	Medium: slope.

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Ha	Harleston fine sandy loam	725	0.2
Je	Jena loam	2,200	0.6
JK	Jena-Kirkville association	9,300	2.7
KpB2	Kipling silty clay loam, 2 to 5 percent slopes, eroded	1,270	0.4
KpC2	Kipling silty clay loam, 5 to 8 percent slopes, eroded	1,535	0.4
KpD2	Kipling silty clay loam, 8 to 12 percent slopes, eroded	1,595	0.5
KR	Kirkville-Mantachie association	12,710	3.7
KT	Kirkville, Mantachie and Mooreville soils	9,505	2.7
Le	Leeper silty clay	3,275	1.0
LpB	Lexington silt loam, 2 to 5 percent slopes	5,225	1.5
LuB2	Luverne fine sandy loam, 2 to 5 percent slopes, eroded	360	0.1
LuC2	Luverne fine sandy loam, 5 to 8 percent slopes, eroded	3,990	1.2
LuD2	Luverne fine sandy loam, 8 to 12 percent slopes, eroded	3,685	1.1
LuE	Luverne fine sandy loam, 12 to 25 percent slopes	11,990	3.5
Ma	Mantachie loam	46,090	13.3
Mr	Marietta loam	2,355	0.7
Mt	Mathiston silt loam	2,885	0.8
OaB2	Ora fine sandy loam, 2 to 5 percent slopes, eroded	2,215	0.6
OaC2	Ora fine sandy loam, 5 to 8 percent slopes, eroded	12,620	3.6
OaD2	Ora fine sandy loam, 8 to 12 percent slopes, eroded	6,230	1.8
Ph	Pheba silt loam	2,070	0.6
Pt	Pits	400	0.1
SaF	Saffell gravelly sandy loam, 8 to 45 percent slopes	455	0.1
SbA	Savannah loam, 0 to 2 percent slopes	1,735	0.5
SbB	Savannah loam, 2 to 5 percent slopes	14,315	4.1
SdC2	Smithdale fine sandy loam, 5 to 8 percent slopes, eroded	17,155	5.0
SdE	Smithdale fine sandy loam, 8 to 17 percent slopes	15,200	4.4
SMF	Smithdale association, hilly	93,085	26.9
STF	Smithdale-Luverne association, hilly	53,650	15.5
SuE2	Sumter silty clay, 8 to 17 percent slopes, eroded	345	0.1
Tr	Trebloc silt loam	1,365	0.4
	Water	6,705	1.9
	Total	346,240	100.0

[1]Less than 0.1 percent.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. The estimates were made in 1975. Absence of data indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Corn	Soybeans	Cotton lint	Bahiagrass	Tall fescue	Improved bermudagrass
	Bu	Bu	Lb	AUM[1]	AUM[1]	AUM[1]
Harleston:						
Ha	90	35	---	9.0	---	12.0
Jena:						
Je	85	40	700	10.0	---	12.0
[2]JK:						
Jena part	---	---	---	8.0	---	---
Kirkville part	---	---	---	7.5	---	---
Kipling:						
KpB2	---	25	550	7.0	6.5	8.5
KpC2	---	20	500	6.5	6.0	8.0
KpD2	---	---	---	6.0	---	7.5
Kirkville:						
[2]KR:						
Kirkville part	---	---	---	7.5	---	---
Mantachie part	---	---	---	8.0	---	---
Kirkville:						
[2]KT:						
Mantachie part	---	---	---	8.0	---	---
Kirkville part	---	---	---	7.5	---	---
Mooreville part	---	---	---	8.0	---	---
Leeper:						
Le	80	40	750	---	11.0	12.0
Lexington:						
LpB	90	35	700	10.0	---	10.0
Luverne:						
LuB2	65	30	600	8.5	---	9.5
LuC2	55	30	550	8.0	---	9.0
LuD2	---	---	---	7.0	---	8.0
LuE	---	---	---	7.0	---	8.0
Mantachie:						
Ma	90	35	650	10.0	10.0	11.0
Marietta:						
Mr	90	40	750	10.5	12.0	12.0
Mathiston:						
Mt	95	35	700	10.0	10.0	11.0
Ora:						
OaB2	80	35	700	9.0	8.0	8.5
OaC2	70	30	600	8.5	7.5	8.0
OaD2	---	---	---	8.0	7.0	7.0
Pheba:						
Ph	75	30	575	8.0	7.0	8.5

See footnote at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Soybeans	Cotton lint	Bahiagrass	Tall fescue	Improved bermudagrass
	Bu	Bu	Lb	AUM[1]	AUM[1]	AUM[1]
Pits:						
Pt.						
Saffell:						
SaF	---	---	---	---	---	---
Savannah:						
SbA	80	35	700	9.0	8.0	8.5
SbB	75	35	650	9.0	8.0	8.5
Smithdale:						
SdC2	65	30	600	9.0	---	9.0
SdE	---	---	---	8.0	---	9.0
[2]SMF	---	---	---	---	---	---
[2]STF:						
Smithdale part	---	---	---	---	---	---
Luverne part	---	---	---	---	---	---
Sumter:						
SuE2	---	---	---	---	---	5.0
Trebloc:						
Tr	---	25	---	8.0	8.0	8.0

[1]Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.
[2]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 7.--ACREAGE OF SOILS BY CAPABILITY CLASS, SUBCLASS, AND UNIT

[Miscellaneous areas excluded]

Capability unit	Capability class	Capability subclass	Capability unit	Map unit symbol
	Acres	Acres	Acres	
IIe-1	---	---	5,225	LpB
IIe-2	---	---	16,530	OaB2, SbB
Total in subclass IIe	---	21,755	---	---
IIw-1	---	---	725	Ha
IIw-2	---	---	3,275	Le
IIw-3	---	---	1,735	SbA
IIw-4	---	---	48,975	Ma, Mt
IIw-5	---	---	2,200	Je
IIw-6	---	---	2,355	Mr
Total in subclass IIw	---	59,265	---	---
Total in class II	81,020	---	---	---
IIIe-1	---	---	1,270	KpB2
IIIe-2	---	---	360	LuB2
IIIe-3	---	---	17,155	SdC2
IIIe-4	---	---	12,620	OaC2
Total in subclass IIIe	---	31,405	---	---
IIIw-1	---	---	2,070	Ph
IIIw-2	---	---	1,365	Tr
Total in subclass IIIw	---	3,435	---	---
Total in class III	34,840	---	---	---
IVe-1	---	---	1.535	KpC2
IVe-2	---	---	3,990	LuC2
IVe-3	---	---	6,230	OaD2
Total in subclass IVe	---	11,755	---	---
Total in class IV	11,755	---	---	---
Vw-1	---	---	31,515	JK,KR,KT
Total in subclass Vw	---	31,515	---	---
Total in class V	31.515	---	---	---
VIe-1	---	---	14,965	SdE
VIe-2	---	---	3,695	LuD2
VIe-3	---	---	1,595	KpD2
VIe-4	---	---	3,450	SuE2
Total in subclass VIe	---	23,695	---	---
Total in class VI	23,695	---	---	---
VIIe-1	---	---	146,735	SaF,SMF,STF
VIIe-2	---	---	11,990	LuE
Total in subclass VIIe	---	158,725	---	---
Total in class VII	158,725	---	---	---
Total	341,550	341,550	341,550	

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed in this table. Absence of an entry indicates that information was not available]

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Important trees	Potential productivity: Site index	Trees to plant
Harleston:								
Ha	2w8	Slight	Moderate	Slight	Slight	Loblolly pine	90	Loblolly pine.
						Shortleaf pine	80	
						Sweetgum	75	
Jena:								
[1]JK:								
Jena part	1w9	Slight	Severe	Moderate	Moderate	Loblolly pine	100	Loblolly pine,
						Sweetgum	90	American sycamore,
						Water oak	80	eastern cottonwood.
Kirkville part	1w9	Slight	Severe	Severe	Moderate	Cherrybark oak	100	Cherrybark oak,
						Loblolly pine	95	eastern cottonwood,
						Sweetgum	100	loblolly pine,
						Water oak	100	sweetgum,
								yellow-poplar.
Kipling:								
KpB2, KpC2, KpD2	2c8	Slight	Moderate	Moderate	Moderate	Cherrybark oak	90	Cherrybark oak,
						Loblolly pine	90	loblolly pine,
						Shumard oak	85	Shumard oak,
						Sweetgum	90	sweetgum.
						Water oak	80	
						White oak	80	
Kirkville:								
[1]KR:								
Kirkville part	1w9	Slight	Severe	Severe	Moderate	Cherrybark oak	100	Cherrybark oak,
						Loblolly pine	95	eastern cottonwood,
						Sweetgum	100	loblolly pine,
						Water oak	100	sweetgum,
								yellow-poplar.
Mantachie part	1w9	Slight	Severe	Severe	Severe	Green ash	80	Green ash,
						Eastern cottonwood	90	eastern cottonwood,
						Cherrybark oak	100	cherrybark oak,
						Loblolly pine	98	loblolly pine,
						Sweetgum	95	sweetgum,
						Yellow-poplar	95	yellow-poplar.
Kirkville:								
[1]KT:								
Kirkville part	1w9	Slight	Severe	Severe	Moderate	Cherrypark oak	100	Cherrybark oak,
						Loblolly pine	95	eastern cottonwood,
						Sweetgum	100	loblolly pine,
						Water oak	100	sweetgum,
								yellow-poplar.
Mantachie part	1w9	Slight	Severe	Severe	Severe	Green ash	80	Green ash,
						Eastern cottonwood	90	eastern cottonwood,
						Cherrybark oak	100	cherrybark oak,
						Loblolly pine	98	loblolly pine,
						Sweetgum	95	sweetgum,
						Yellow-poplar	95	yellow-poplar.
Mooreville part	1w	Slight	Severe	Severe	Moderate	Cherrybark oak	100	Cherrybark oak,
						Eastern cottonwood	105	eastern cottonwood,
						Green ash	80	green ash,
						Loblolly pine	95	loblolly pine,
						Sweetgum	100	sweetgum,
						Yellow-poplar	100	yellow-poplar.

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Important trees	Site index	
Leeper: Le	1w9	Slight	Severe	Severe	Slight	Eastern cottonwood Sweetgum Green ash American sycamore	110 95 90 100	Eastern cottonwood, sweetgum, green ash, American sycamore.
Lexington: LpB	3o7	Slight	Slight	Slight	Moderate	Cherrybark oak Southern red oak Loblolly pine Sweetgum	80 70 80 89	Cherrybark oak, Shumard oak, loblolly pine, yellow-poplar, sweetgum.
Luverne: LuB2, LuC2, LuD2, LuE	3c2	Slight	Moderate	Slight	Slight	Loblolly pine	85	Loblolly pine.
Mantachie: Ma	1w9	Slight	Severe	Moderate	Severe	Green ash Eastern cottonwood Cherrybark oak Loblolly pine Sweetgum Yellow-poplar	80 90 100 98 95 95	Green ash, eastern cottonwood, cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
Marietta: Mr	1w5	Slight	Moderate	Moderate	Slight	Eastern cottonwood Green ash Sweetgum American sycamore Yellow-poplar	105 90 100 105 100	Eastern cottonwood, sweetgum, yellow-poplar, green ash, American sycamore.
Mathiston: Mt	1w8	Slight	Moderate	Slight	Moderate	Cherrybark oak Green ash Loblolly pine Sweetgum	100 90 95 95	Cherrybark oak, green ash, loblolly pine, sweetgum, American sycamore.
Ora: OaB2, OaC2, OaD2	3o7	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine Sweetgum	83 69 80	Loblolly pine.
Pheba: Ph	2w8	Slight	Moderate	Slight	Moderate	Loblolly pine Shortleaf pine Sweetgum Slash pine	90 80 90 90	Loblolly pine.
Saffell: SaF	4f2	Slight	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine	70 60	Loblolly pine, shortleaf pine.
Savannah: SbA, SbB	3o7	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine Southern red oak	81 76 75	Loblolly pine.
Smithdale: SdC2, SdE, [1]SMF	3o7	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine	80 69	Loblolly pine.

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Important trees	Potential productivity: Site index	Trees to plant
Smithdale:								
[1]STF:								
Smithdale part	3o7	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine	80 69	Loblolly pine.
Luverne part	3c2	Slight	Moderate	Slight	Slight	Loblolly pine	85	Loblolly pine.
Sumter:								
SuE2	4c2	Moderate	Moderate	Moderate	Slight	Eastern redcedar	40	Eastern redcedar.
Trebloc:								
Tr	2w9	Slight	Severe	Severe	Moderate	Loblolly pine Sweetgum Water oak Willow oak	95 90 85 80	Green ash, loblolly pine, Nuttall oak, Shumard oak, sweetgum.

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composition and behavior characteristics of the whole map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Harleston:					
Ha	Moderate: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Slight.
Jena:					
Je	Severe: floods, too sandy, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
[1]JK:					
Jena part	Severe: floods, too sandy, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Kirkville part	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
Kipling:					
KpB2, KpC2	Severe: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength, corrosive.	Severe: shrink-swell, low strength.
KpD2	Severe: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength, slope.	Severe: shrink-swell, low strength.
Kirkville:					
[1]KR:					
Kirkville part	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
Mantachie part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
Kirkville:					
[1]KT:					
Kirkville part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
Mantachie part	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
Mooreville part	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
Leeper:					
Le	Severe: wetness, floods, too clayey.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: shrink-swell, wetness, floods.	Severe: shrink-swell, wetness, floods.
Lexington:					
LpB	Slight	Slight	Slight	Slight	Moderate: low strength.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Luverne:					
LuB2, LuC2	Moderate: too clayey.	Severe: low strength.	Severe: low strength.	Severe: low strength.	Severe: low strength.
LuD2	Moderate: too clayey, slope.	Severe: low strength.	Severe: low strength.	Severe: slope, low strength.	Severe: low strength.
LuE	Severe: slope.	Severe: slope, low strength.	Severe: slope, low strength.	Severe: slope, low strength.	Severe: slope, low strength.
Mantachie:					
Ma	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
Marietta:					
Mr	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, low strength.
Mathiston:					
Mt	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness, corrosive.	Severe: floods, low strength.
Ora:					
OaB2, OaC2	Slight	Moderate: low strength.	Moderate: low strength.	Moderate: low strength, slope.	Moderate: low strength.
OaD2	Moderate: slope.	Moderate: low strength.	Moderate: low strength.	Severe: slope.	Moderate: low strength.
Pheba:					
Ph	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Moderate: low strength, wetness.
Pits:					
Pt.					
Saffell:					
SaF	Severe: slope, small stones.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Savannah:					
SbA, SbB	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, corrosive.	Moderate: low strength.
Smithdale:					
SdC2	Slight	Slight	Slight	Moderate: slope.	Slight.
SdE	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
[1]SMF	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
[1]STF:					
Smithdale part	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Smithdale: Luverne part	Severe: slope.	Severe: slope, low strength.	Severe: slope, low strength.	Severe: slope, low strength.	Severe: slope, low strength.
Sumter: SuE2	Severe: depth to rock, too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: slope, shrink-swell, low strength.	Severe: shrink-swell, low strength.
Trebloc: Tr	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composition and behavior characteristics of the whole map unit.

TABLE 10.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," and "fair." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Harleston:					
Ha	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
Jena:					
Je	Severe: floods.	Severe: floods, seepage.	Severe: floods, too sandy, seepage.	Severe: floods, seepage.	Good.
[1]JK:					
Jena part	Severe: floods.	Severe: floods, seepage.	Severe: floods, too sandy, seepage.	Severe: floods, seepage.	Good.
Kirkville part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Kipling:					
KpB2, KpC2	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey.
KpD2	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey.
Kirkville:					
[1]KR:					
Kirkville part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Mantachie part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Kirkville:					
[1]KT:					
Kirkville part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Mantachie part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Mooreville part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Leeper:					
Le	Severe: percs slowly, wetness, floods.	Slight	Severe: too clayey, floods, wetness.	Severe: floods, wetness.	Poor: too clayey, wetness.
Lexington:					
LpB	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Luverne:					
LuB2, LuC2	Severe: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Fair: thin layer.
LuD2	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: thin layer, slope.
LuE	Severe: slope, percs slowly.	Severe: slope.	Moderate: too clayey, slope.	Severe: slope.	Poor: slope.
Mantachie:					
Ma	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Marietta:					
Mr	Severe: floods, wetness.	Moderate: seepage, floods.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Mathiston:					
Mt	Severe: floods, wetness.	Moderate: seepage, floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Fair: too clayey.
Ora:					
OaB2, OaC2	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
OaD2	Severe: percs slowly.	Severe: slope.	Slight	Moderate: slope.	Good.
Pheba:					
Ph	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: thin layer.
Pits:					
Pt.					
Saffell:					
SaF	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.	Poor: slope, small stones.
Savannah:					
SbA	Severe: percs slowly.	Slight	Slight	Slight	Good.
SbB	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
Smithdale:					
SdC2	Slight	Severe: seepage, slope.	Slight	Slight	Good.
SdE	Moderate: slope.	Severe: seepage, slope.	Slight	Moderate: slope.	Fair: slope.
[1]SMF	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Smithdale:					
[1]STF:					
Smithdale part	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
Luverne part	Severe: slope, percs slowly.	Severe: slope.	Moderate: too clayey, slope.	Severe: slope.	Poor: slope.
Sumter:					
SuE2	Severe: percs slowly, depth to rock.	Severe: slope, percs slowly, depth to rock.	Severe: depth to rock, too clayey.	Moderate: slope.	Poor: too clayey.
Trebloc:					
Tr	Severe: wetness.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composition and behavior characteristics of the whole map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Harleston:				
Ha	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Jena:				
Je	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
[1]JK:				
Jena part	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
Kirkville part	Good	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Kipling:				
KpB2, KpC2, KpD2	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Kirkville:				
[1]KR:				
Kirkville part	Good	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Mantachie part	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Kirkville:				
[1]KT:				
Kirkville part	Good	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Mantachie part	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Mooreville part	Fair: low strength.	Poor: excess fines.	Poor: excess fines.	Fair: too clayey, thin layer.
Leeper:				
Le	Poor: shrink-swell, low strength, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey, wetness.
Lexington:				
LpB	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Luverne:				
LuB2, LuC2, LuD2	Fair: too clayey.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
LuE	Poor: too clayey, slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer, slope.
Mantachie:				
Ma	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Marietta:				
Mr	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey, thin layer.
Mathiston:				
Mt	Poor: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Ora:				
OaB2, OaC2, OaD2	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Pheba:				
Ph	Fair: low strength, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Pits:				
Pt.				
Saffell:				
SaF	Poor: slope.	Poor: excess fines.	Fair: excess fines.	Poor: slope, small stones.
Savannah:				
SbA, SbB	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Smithdale:				
SdC2	Good	Unsuited: excess fines.	Unsuited: excess fines.	Good.
SdE	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
[1]SMF	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
[1]STF:				
Smithdale part	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Luverne part	Fair: too clayey, slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
Sumter:				
SuE2	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Trebloc:				
Tr	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composition and behavior characteristics of the whole map unit.

TABLE 12.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definit "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluate

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terra an divers
Harleston:						
Ha	Moderate: seepage.	Moderate: piping.	Severe: no water.	Wetness	Favorable	Favorabl
Jena:						
Je	Severe: seepage.	Moderate: low strength, seepage, piping.	Severe: no water.	Not needed	Floods	Not need
[1]JK:						
Jena part	Severe: seepage.	Moderate: low strength, seepage, piping.	Severe: no water.	Not needed	Floods	Not need
Kirkville part	Severe: seepage.	Moderate: unstable fill.	Severe: no water.	Floods, wetness.	Wetness, slow intake.	Not need
Kipling:						
KpB2, KpC2, KpD2	Slight	Moderate: unstable fill.	Severe: no water.	Percs slowly, slope.	Slow intake, slope.	Percs sl slope.
Kirkville:						
[1]KR:						
Kirkville part	Severe: seepage.	Moderate: unstable fill.	Severe: no water.	Floods, wetness.	Wetness, slow intake.	Not need
Mantachie part	Moderate: seepage.	Moderate: piping.	Severe: no water.	Wetness, floods.	Wetness, floods.	Wetness-
Kirkville:						
[1]KT:						
Mantachie part	Moderate: seepage.	Moderate: piping.	Severe: no water.	Wetness, floods.	Wetness, floods.	Wetness-
Kirkville part	Severe: seepage.	Moderate: unstable fill.	Severe: no water.	Floods, wetness.	Wetness, slow intake.	Not need
Mooreville part	Moderate: seepage.	Slight	Severe: no water.	Floods, wetness.	Floods, wetness.	Not need
Leeper:						
Le	Slight	Moderate: unstable fill.	Severe: no water.	Floods, wetness,	Slow intake, wetness.	Wetness, percs s

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terrace and diversio
Lexington: LpB	Severe: seepage.	Slight	Severe: no water.	Not needed	Erodes easily, seepage.	Favorable
Luverne: LuB2	Moderate: seepage.	Severe: unstable fill.	Severe: no water.	Not needed	Favorable	Erodes ea
LuC2	Moderate: seepage.	Severe: unstable fill.	Severe: no water.	Not needed	Slope, erodes easily.	Erodes ea
LuD2, LuE	Moderate: seepage.	Severe: unstable fill.	Severe: no water.	Not needed	Slope, erodes easily.	Slope, erodes e
Mantachie: Ma	Moderate: seepage.	Moderate: piping.	Severe: no water.	Wetness, floods.	Wetness, floods.	Not neede
Marietta: Mr	Moderate: seepage.	Moderate: piping.	Moderate: no water.	Floods, wetness.	Floods	Not neede
Mathiston: Mt	Moderate: seepage.	Moderate: piping, low strength.	Severe: no water.	Cutbanks cave, floods, wetness.	Slow intake, floods.	Not neede
Ora: OaB2, OaC2, OaD2	Moderate: seepage.	Moderate: piping.	Severe: no water.	Percs slowly	Percs slowly	Favorable
Pheba: Ph	Moderate: seepage.	Moderate: piping.	Severe: no water.	Wetness, percs slowly.	Slow intake, wetness.	Not neede
Pits: Pt.						
Saffell: SaF	Moderate: seepage.	Moderate: seepage, piping, thin layer.	Severe: no water.	Not needed	Droughty, fast intake, seepage.	Erodes ea piping, slope.
Savannah: SbA	Moderate: seepage.	Moderate: low strength, piping	Severe: no water.	Percs slowly	Percs slowly	Percs slo erodes e
SbB	Moderate: seepage.	Moderate: low strength, piping.	Severe: no water.	Percs slowly, slope.	Percs slowly	Percs slo erodes e

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terra an divers
Smithdale:						
SdC2	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Fast intake, seepage, complex slope.	Favorabl
SdE, [1]SMF	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Fast intake, seepage, complex slope.	Slope, erodes
[1]STF:						
Smithdale part	Severe: seepage.	Moderate: piping, unstable fill.	Severe: no water.	Not needed, slope.	Fast intake, seepage, complex slope.	Slope, erodes
Luverne part	Moderate: seepage.	Severe: unstable fill.	Severe: no water.	Not needed	Slope, erodes easily.	Slope, erodes
Sumter:						
SuE2	Slight	Moderate: shrink-swell, low strength.	Severe: no water.	Not needed	Slow intake, percs slowly, slope.	Complex depth t percs s
Trebloc:						
Tr	Moderate: seepage.	Moderate: low strength, piping.	Severe: no water.	Percs slowly, wetness.	Slow intake, wetness.	Not need

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for co behavior characteristics of the whole map unit.

TABLE 13.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Harleston:				
Ha	Slight	Slight	Slight	Slight.
Jena:				
Je	Severe: floods.	Moderate: floods.	Severe: floods.	Slight.
[1]JK:				
Jena part	Severe: floods.	Moderate: floods.	Severe: floods.	Slight.
Kirkville part	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods, wetness.	Slight.
Kipling:				
KpB2	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: percs slowly, wetness.	Moderate: wetness.
KpC2, KpD2	Moderate: percs slowly, wetness.	Moderate: wetness.	Severe: slope.	Moderate: wetness.
Kirkville:				
[1]KR:				
Kirkville part	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods, wetness.	Slight.
Mantachie part	Severe: floods, wetness.	Severe: wetness, floods.	Severe: floods, wetness.	Moderate: wetness.
Kirkville:				
[1]KT:				
Kirkville part	Severe: floods, wetness.	Moderate floods, wetness.	Severe: floods. wetness.	Slight.
Mantachie part	Severe: floods, wetness.	Severe: wetness, floods.	Severe: floods, wetness.	Moderate: wetness.
Mooreville part	Severe: floods.	Moderate: wetness.	Severe: floods.	Moderate: floods.
Leeper:				
Le	Severe: wetness, floods, percs slowly.	Severe: too clayey, wetness, floods.	Severe: wetness, floods, percs slowly.	Severe: too clayey, floods, wetness.
Lexington:				
LpB	Slight	Slight	Moderate: slope.	Slight.
Luverne:				
LuB2	Moderate: percs slowly.	Slight	Moderate: slope, percs slowly.	Slight.
LuC2	Moderate: percs slowly.	Slight	Severe: slope.	Slight.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Luverne:				
LuD2	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight.
LuE	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Mantachie:				
Ma	Severe: wetness, floods.	Severe: wetness, floods.	Moderate: wetness, floods.	Moderate: wetness.
Marietta:				
Mr	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
Mathiston:				
Mt	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: floods.	Moderate: floods, wetness.
Ora:				
OaB2	Slight	Slight	Moderate: slope.	Slight.
OaC2	Slight	Slight	Severe: slope.	Slight.
OaD2	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Pheba:				
Ph	Moderate: percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
Pits:				
Pt.				
Saffell:				
SaF	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Savannah:				
SbA	Slight	Slight	Slight	Slight.
SbB	Slight	Slight	Moderate: slope.	Slight.
Smithdale:				
SdC2	Slight	Slight	Severe: slope.	Slight.
SdE	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
[1]SMF	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
[1]STF:				
Smithdale part	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Luverne part	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Sumter: SuE2	Severe: too clayey.	Severe: too clayey.	Severe: slope, too clayey.	Severe: too clayey.
Trebloc: Tr	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composition and behavior characteristics of the whole map unit.

TABLE 14.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Harleston:										
Ha	Good	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor
Jena:										
Je	Poor	Fair	Fair	Good	---	Poor	Poor	Fair	Good	Poor
[1]JK:										
Jena part	Poor	Fair	Fair	Good	---	Poor	Poor	Fair	Good	Poor
Kirkville part	Poor	Good	Good	Good	---	Poor	Poor	Fair	Good	Poor
Kipling:										
KpB2	Fair	Good	Good	Good	---	Poor	Fair	Good	Good	Poor
KpC2, KpD2	Fair	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor
Kirkville:										
[1]KR:										
Kirkville part	Poor	Good	Good	Good	---	Poor	Poor	Fair	Good	Poor
Mantachie part	Poor	Fair	Fair	Good	---	Fair	Fair	Fair	Good	Fair
Kirkville:										
[1]KT:										
Kirkville part	Poor	Good	Good	Good	---	Poor	Poor	Fair	Good	Poor
Mantachie part	Poor	Fair	Fair	Good	---	Fair	Fair	Fair	Good	Fair
Mooreville part	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor
Leeper:										
Le	Good	Good	Fair	Good	Good	Fair	Good	Good	Good	Fair
Lexington:										
LpB	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Luverne:										
LuB2	Good	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor
LuC2, LuD2	Fair	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor
LuE	Poor	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor
Mantachie:										
Ma	Fair	Good	Good	Good	---	Fair	Fair	Good	Good	Fair
Marietta:										
Mr	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Mathiston:										
Mt	Fair	Good	Good	Good	---	Fair	Fair	Good	Good	Fair
Ora:										
OaB2	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor
OaC2, OaD2	Fair	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor

See footnote at end of table.

TABLE 14.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Pheba: Ph	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
Pits: Pt.										
Saffell: SaF	Very poor	Fair	Fair	Fair	---	Very poor	Very poor	Poor	Fair	Very poor
Savannah: SbA, SbB	Good	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor
Smithdale: SdC2, SdE	Fair	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor
[1]SMF	Very poor	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor
[1]STF: Smithdale part	Very poor	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor
Luverne part	Poor	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor
Sumter: SuE2	Fair	Fair	Fair	Good	---	Very poor	Very poor	Fair	Good	Very poor
Trebloc: Tr	Poor	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composotion and behavior characteristics of the whole map unit.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not rated]

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Harleston: Ha	0-9	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	0	90-100	85-100	55-95	20-60	<25	NP-7
	9-55	Sandy loam, loam	SC, CL, CL-ML, SM-SC	A-2, A-4	0	90-100	85-100	60-95	30-70	20-30	5-10
	55-70	Sandy loam, loam, sandy clay loam.	SC, CL, CL-ML, SM-SC	A-2, A-4, A-6	0	90-100	85-100	60-95	30-70	20-35	5-13
Jena: Je	0-30	Loam	ML CL-ML	A-4	0	100	100	85-95	60-75	<22	NP-4
	30-55	Fine sandy loam, sandy loam, loamy fine sand.	SM	A-2-4, A-4	0	100	100	50-80	20-50	<22	NP-4
[1]JK: Jena part	0-30	Loam	ML, CL-ML	A-4	0	100	100	85-95	60-75	<22	NP-4
	30-55	Fine sandy loam, sandy loam, loamy fine sand.	SM	A-2-4, A-4	0	100	100	50-80	20-50	<22	NP-4
Kirkville part	0-4	Sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-85	30-65	<20	NP-5
	4-60	Loam, sandy loam, fine sandy loam, silt loam.	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-100	30-90	<20	NP-5
Kipling: KpB2, KpC2, KpD2	0-3	Silty clay loam	CL, ML	A-6, A-4, A-7	0	100	100	90-100	70-95	20-45	8-25
	3-51	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	100	100	95-100	85-95	38-70	22-45
	51-60	Clay, silty clay	CH	A-7	0	100	100	90-100	75-95	60-80	35-50
Kirkville: [1]KR: Kirkville part	0-4	Sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-85	30-65	<20	NP-5
	4-60	Loam, sandy loam, fine sandy loam, silt loam.	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-100	30-65	<20	NP-5
Mantachie part	0-12	Loam	CL-ML, ML, SM, SM-SC	A-4	0-5	95-100	90-100	60-85	40-60	<20	NP-5
	12-64	Loam, clay loam, sandy clay loam.	ML, CL, SC, SM	A-4, A-6	0-5	95-100	90-100	80-95	45-80	20-40	5-15

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Kirkville:											
[1]KT:											
Kirkville part--	0-4	Sandy loam------	SM, ML, CL-ML ,	A-2, A-4	0	100	100	60-85	30-70	<20	NP-5
	4-60	Loam, sandy loam, fine sandy loam, silt loam.	ML, SM CL-ML, SM-SC	A-2, A-4	0	100	100	60-100	30-90	<20	NP-5
Mantachie part--	0-12	Loam------------	CL-ML, ML, SM SM-SC	A-4	0-5	95-100	90-100	60-85	40-60	<20	NP-5
	12-64	Loam, clay loam, sandy clay loam	ML, CL, SC, SM	A-4, A-6	0-5	95-100	90-100	80-95	45-80	20-40	5-15
Mooreville part-	0-5	Loam------------	CL-ML, CL, SM-SC, SC	A-4	0	100	100	80-100	40-85	20-30	5-10
	5-50	Sandy clay loam, clay loam, loam.	CL, SC	A-6, A-7	0	100	100	80-95	45-80	28-50	15-30
	50-60	Loam, sandy loam, sandy clay loam.	SM-SC, SC, CL, CL-ML	A-4, A-6, A-7	0	100	100	70-95	40-80	20-45	5-30
Leeper:											
Le----------------	0-9	Silty clay------	CH, CL	A-7	0	100	100	90-100	80-95	45-70	25-45
	9-50	Clay, silty clay, silty clay loam.	CH	A-7	0	100	100	95-100	80-97	52-75	30-50
Lexington:											
LpB---------------	0-7	Silt loam-------	ML, CL, CL-ML	A-4, A-6, A-7	0	100	95-100	90-100	70-95	25-42	5-16
	7-28	Silty clay loam, silt loam, loam	CL	A-6, A-7	0	100	95-100	90-100	75-95	27-45	11-25
	28-84	Sandy loam, loamy sand. sandy clay loam, loam.	SC, SM-SC CL, CL-ML	A-4, A-6,	0	100	95-100	80-90	40-60	20-35	7-15
Luverne:											
LuB2, LuC2, LuD2, LuE---------------	0-7	Fine sandy loam	ML, SM	A-2, A-4	---	95-100	90-100	90-100	18-80	<20	NP
	7-33	Clay loam, sandy clay, clay.	ML, MH	A-4, A-5, A-6, A-7	---	95-100	95-100	95-100	60-95	33-72	1-30
	33-40	Clay loam, sandy clay loam.	ML, MH, SM	A-5, A-6, A-7,	---	95-100	90-100	90-100	40-70	40-60	2-12
	40-50	Stratified fine sandy loam to sandy clay loam.	SM	A-2, A-4, A-5	---	95-100	90-100	80-100	20-50	<25	NP-6
Mantachie:											
Ma----------------	0-12	Loam------------	CL-ML, ML, SM, SM-SC	A-4	0-5	95-100	90-100	60-85	40-60	<20	NP-5
	12-64	Loam, clay loam, sandy clay loam.	ML, CL, SC, SM	A-4, A-6	0-5	95-100	90-100	80-95	45-80	20-40	5-15

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Marietta:											
Mr	0-6	Loam	ML, CL, SM	A-4	0	100	100	80-95	40-90	20-30	5-10
	6-55	Silty clay loam, sandy clay loam, loam, clay loam.	CL, SC	A-6, A-4	0	100	100	85-100	45-90	25-40	8-20
Mathiston:											
Mt	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	100	100	85-100	60-95	25-35	7-15
	7-60	Silty clay loam, loam, silt loam.	CL	A-6, A-7	0	100	100	85-100	70-90	30-45	15-25
Ora:											
OaB2, OaC2, OaD2	0-5	Fine sandy loam	SM-SC, SM, ML, CL-ML	A-4, A-2	0	100	95-100	65-85	30-65	<30	NP-5
	5-22	Clay loam, sandy clay loam, loam.	CL, ML	A-6, A-4, A-7	0	100	95-100	80-100	50-80	25-48	8-22
	22-56	Sandy clay loam, loam, sandy loam.	CL, ML	A-6, A-7, A-4	0	100	95-100	80-100	50-75	25-43	8-25
Pheba:											
Ph	0-3	Silt loam	ML, CL, CL-ML	A-4	0	100	100	85-100	55-90	<25	NP-8
	3-21	Silt loam, loam	ML, CL, CL-ML	A-4	0	100	100	90-100	75-90	<25	NP-8
	21-80	Silt loam, loam, silty clay loam.	CL, ML	A-6, A-4	0	100	100	90-100	75-95	30-40	11-16
Pits:											
Pt.											
Saffell:											
SaF	0-4	Gravelly sandy loam.	GM, SM	A-1, A-2, A-4	0-5	45-80	35-75	25-65	15-45	<20	NP-3
	4-40	Gravelly fine sandy loam, gravelly sandy clay loam.	GC, SC, SM-SC, GM-GC	A-2, A-1	0-15	35-85	25-70	20-55	15-35	20-40	4-18
	40-60	Gravelly fine sandy loam, gravelly sandy loam, gravelly loam.	GM, GC, SM, SC	A-1, A-2, A-3	0-5	25-80	10-70	5-60	5-35	<35	NP-15
Savannah:											
SbA, SbB	0-6	Loam	ML, CL-ML	A-4	0	100	100	60-100	60-90	<25	NP-7
	6-25	Sandy clay loam, clay loam, loam, silty clay loam.	CL, SC, CL-ML	A-4, A-6	0	100	100	80-100	40-80	23-40	7-19
	25-65	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7	0	100	100	80-100	40-80	23-43	7-19

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Smithdale: SdC2, SdE, [1]SMF---	0-6	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	6-45	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	45-85	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
[1]STF: Smithdale part--	0-6	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	6-45	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	45-85	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Luverne part----	0-7	Fine sandy loam	ML, SM	A-2, A-4	---	95-100	90-100	90-100	18-80	<20	NP
	7-33	Clay loam, sandy clay, clay.	ML, MH	A-4, A-5, A-6, A-7	---	95-100	95-100	95-100	60-95	33-72	1-30
	33-40	Clay loam, sandy clay loam.	ML, MH, SM	A-4, A-5, A-6, A-7	---	95-100	90-100	90-100	40-70	40-60	2-12
	40-50	Stratified fine sandy loam to sandy clay loam.	SM	A-2, A-4, A-5	---	95-100	90-100	80-100	20-50	<25	NP-6
Sumter: SuE2---------------	0-4	Silty clay------	CL, ML	A-7	0	99-100	99-100	98-100	85-90	41-50	16-25
	4-33	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	100	99-100	99-100	90-95	41-55	16-32
	33-60	Weathered bedrock.	CH, CL	A-7	0	100	100	99-100	75-90	41-60	16-34
Trebloc: Tr----------------	0-9	Silt loam--------	ML, CL-ML	A-4	0	100	100	80-100	55-90	<30	NP-7
	9-43	Silt loam, silty clay loam, loam.	ML, CL	A-4, A-6	0	100	100	85-100	85-100	25-40	8-14
	43-65	Silty clay loam, silty clay, clay loam.	CL, ML	A-6, A-7	0	100	100	85-100	85-100	30-48	12-21

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composition and behavior characteristics of the whole map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than. Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH					
Harleston:									
Ha	0-9	0.6-2.0	0.08-0.16	4.0-5.5	Low	Moderate	High	0.20	5
	9-55	0.6-2.0	0.13-0.16	4.0-5.5	Low	Moderate	High	0.32	
	55-70	0.6-2.0	0.13-0.16	4.0-5.5	Low	Moderate	High	0.32	
Jena:									
Je	0-30	0.6-2.0	0.12-0.20	4.5-6.0	Low	Low	High	---	---
	30-55	0.6-2.0	0.10-0.20	4.5-5.5	Low	Low	High	---	
[1]JK:									
Jena part	0-30	0.6-2.0	0.12-0.20	4.5-6.0	Low	Low	High	---	---
	30-55	0.6-2.0	0.10-0.20	4.5-5.5	Low	Low	High	---	
Kirkville part	0-4	0.6-2.0	0.15-0.15	4.5-5.5	Low	Moderate	High	---	---
	4-60	0.6-2.0	0.10-0.15	4.5-5.5	Low	Moderate	High	---	
Kipling:									
KpB2, KpC2, KpD2	0-3	0.06-0.2	0.20-0.22	4.0-6.0	Moderate	High	High	0.32	4
	3-51	0.06-0.2	0.20-0.22	5.5-8.4	Very high	High	High	0.32	
	51-60	<0.06	0.18-0.20	5.6-8.4	Very high	High	High	0.32	
Kirkville:									
[1]KR:									
Kirkville part	0-4	0.6-2.0	0.15-0.15	4.5-5.5	Low	Moderate	High	---	---
	4-60	0.6-2.0	0.10-0.15	4.5-5.5	Low	Moderate	High	---	
Mantachie part	0-12	0.6-2.0	0.10-0.15	4.5-5.5	Low	High	High	---	---
	12-64	0.6-2.0	0.14-0.20	4.5-5.5	Low	High	High	---	
Kirkville:									
[1]KT:									
Kirkville part	0-4	0.6-2.0	0.15-0.22	4.5-5.5	Low	Moderate	High	---	---
	4-60	0.6-2.0	0.10-0.15	4.5-5.5	Low	Moderate	High	---	
Mantachie part	0-12	0.6-2.0	0.10-0.15	4.5-5.5	Low	High	High	---	---
	12-64	0.6-2.0	0.14-0.20	4.5-5.5	Low	High	High	---	
Mooreville part	0-5	0.6-2.0	0.14-0.20	4.5-5.5	Low	Moderate	High	---	---
	5-50	0.6-2.0	0.14-0.18	4.5-5.5	Moderate	Moderate	High	---	
	50-60	0.6-2.0	0.14-0.18	4.5-5.5	Moderate	Moderate	High	---	
Leeper:									
Le	0-9	0.06-0.2	0.18-0.22	5.6-8.4	High	High	Low	---	---
	9-50	<0.06	0.18-0.20	5.6-8.4	High	High	Low	---	
Lexington:									
LpB	0-7	0.6-2.0	0.17-0.22	4.5-6.0	Low	Low	Low	0.43	4
	7-28	0.6-2.0	0.16-0.21	4.5-6.0	Low	Moderate	Low	0.43	
	28-84	2.0-6.0	0.10-0.15	4.5-6.0	Low	Low	Low	0.24	
Luverne:									
LuB2, LuC2, LuD2, LuE	0-7	2.0-6.0	0.06-0.15	4.5-5.5	Low	High	High	0.37	3
	7-33	0.2-0.6	0.12-0.18	3.6-5.5	Moderate	High	High	0.28	
	33-40	0.2-0.6	0.12-0.18	3.6-5.5	Low	High	High	0.28	
	40-50	0.2-2.0	0.10-0.14	3.6-5.5	Low	High	High	0.32	
Mantachie:									
Ma	0-12	0.6-2.0	0.10-0.15	4.5-5.5	Low	High	High	---	---
	12-64	0.6-2.0	0.14-0.20	4.5-5.5	Low	High	High	---	

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Marietta:									
Mr	0-6	0.6-2.0	0.14-0.18	5.6-7.8	Low	Moderate	Low	---	---
	6-55	0.6-2.0	0.14-0.20	5.6-7.8	Low	Moderate	Low	---	
Mathiston:									
Mt	0-7	0.6-2.0	0.18-0.22	4.5-5.5	Low	High	High	---	---
	7-60	0.6-2.0	0.18-0.22	4.5-5.5	Low	High	High	---	
Ora:									
OaB2, OaC2, OaD2	0-5	2.0-6.0	0.10-0.13	4.0-5.5	Low	Moderate	High	0.32	3
	5-22	0.6-2.0	0.12-0.18	4.0-5.5	Low	Moderate	High	0.37	
	22-56	0.2-0.6	0.05-0.10	4.0-5.5	Low	Moderate	High	0.32	
Pheba:									
Ph	0-3	0.6-2.0	0.16-0.22	4.0-5.5	Low	High	High	0.49	---
	3-21	0.6-2.0	0.16-0.22	4.0-5.5	Low	High	High	0.49	
	21-80	0.2-0.6	0.05-0.10	4.0-5.5	Low	High	High	0.43	
Pits:									
Pt.									
Saffell:									
SaF	0-4	2.0-6.0	0.05-0.10	4.5-5.5	Low	Low	Moderate	0.20	4
	4-40	0.6-2.0	0.06-0.10	4.5-5.5	Low	Low	Moderate	0.24	
	40-60	0.6-6.0	0.04-0.11	4.5-5.5	Low	Low	Moderate	0.24	
Savannah:									
SbA, SbB	0-6	0.6-2.0	0.16-0.20	4.5-5.5	Low	Moderate	High	0.37	3
	6-25	0.6-2.0	0.13-0.20	4.5-5.5	Low	Moderate	High	0.28	
	25-65	0.2-0.6	0.05-0.10	4.5-5.5	Low	Moderate	High	0.24	
Smithdale:									
SdC2, SdE, [1]SMF	0-6	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.28	5
	6-45	0.6-2.0	0.15-0.17	4.5-5.5	Low	Low	Moderate	0.28	
	45-85	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.24	
[1]STF:									
Smithdale part	0-6	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.28	5
	6-45	0.6-2.0	0.15-0.17	4.5-5.5	Low	Low	Moderate	0.28	
	45-85	2.0-6.0	0.14-0.16	4.5-5.5	Low	Low	Moderate	0.24	
Luverne part	0-7	2.0-6.0	0.06-0.15	4.5-5.5	Low	High	High	0.37	3
	7-33	0.2-0.6	0.12-0.18	3.6-5.5	Moderate	High	High	0.28	
	33-40	0.2-0.6	0.12-0.18	3.6-5.5	Low	High	High	0.28	
	40-50	0.2-2.0	0.10-0.14	3.6-5.5	Low	High	High	0.32	
Sumter:									
SuE2	0-4	0.06-2.0	0.12-0.17	7.4-8.4	High	Moderate	Low	0.37	3
	4-33	0.06-2.0	0.12-0.17	7.4-8.4	High	Moderate	Low	0.37	
	33-60	---	---	---	---	---	---	---	
Trebloc:									
Tr	0-9	0.6-2.0	0.16-0.20	4.5-5.5	Low	High	High	---	---
	9-43	0.2-0.6	0.15-0.20	4.5-5.5	Moderate	High	High	---	
	43-65	0.2-0.6	0.14-0.18	4.5-5.5	Moderate	High	High	---	

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composition and behavior characteristics of the whole map unit.

TABLE 17.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "occasional," "brief," "apparent," and "perched." The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness
					Ft			In	
Harleston:									
Ha	C	None to occasional.	---	---	2.0-3.0	Apparent	Nov-Mar	>60	---
Jena:									
Je	B	Common	Very brief to long.	Dec-Apr	>6.0	---	---	>60	---
[1]JK:									
Jena part	B	Common	Very brief to long.	Dec-Apr	>6.0	---	---	>60	---
Kirkville part	C	Common	Brief to long.	Jan-Apr	1.5-2.5	Apparent	Jan-Apr	>60	---
Kipling:									
KpB2, KpC2, KpD2	D	None	---	---	1.5-3.0	Perched	Jan-Mar	36-80	Rippable
Kirkville:									
[1]KR:									
Kirkville part	C	Common	Brief to long.	Jan-Apr	1.5-2.5	Apparent	Jan-Apr	>60	---
Mantachie part	C	Common	Brief to long.	Jan-Apr	1.0-1.5	Apparent	Dec-Mar	>60	---
Kirkville:									
[1]KT:									
Kirkville part	C	Common	Brief to long.	Jan-Mar	1.5-2.5	Apparent	Jan-Apr	>60	---
Mantachie part	C	Common	Brief to long.	Jan-Apr	1.0-1.5	Apparent	Dec-Mar	>60	---
Mooreville part	C	Common	Brief to long.	Jan-Apr	1.5-3.0	Apparent	Jan-Mar	>60	---
Leeper:									
Le	D	Common	Brief	Jan-Mar	1.0-2.0	Apparent	Jan-Mar	>60	---
Lexington:									
LpB	B	None	---	---	>6.0	---	---	>60	---
Luverne:									
LuB2, LuC2, LuD2, LuE	C	None	---	---	>6.0	---	---	>60	---
Mantachie:									
Ma	C	Common	Brief to long.	Jan-Apr	1.0-1.5	Apparent	Dec-Mar	>60	---
Marietta:									
Mr	C	Common	Brief	Jan-Mar	1.5-3.0	Apparent	Jan-Mar	>60	---
Mathiston:									
Mt	C	Common	Very brief to long.	Jan-Apr	1.5-2.5	Apparent	Jan-Apr	>60	---
Ora:									
OaB2, OaC2, OaD2	C	None	---	---	2.0-3.5	Perched	Feb-Apr	>60	---
Pheba:									
Ph	C	None	---	---	1.5-2.0	Perched	Jan-Mar	>60	---

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness
					Ft			In	
Pits:									
Pt.									
Saffell:									
SaF	B	None	---	---	>6.0	---	---	>60	---
Savannah:									
SbA, SbB	C	None	---	---	1.5-3.0	Perched	Jan-Mar	>60	---
Smithdale:									
SdC2, SdE, [1]SMF	B	None	---	---	>6.0	---	---	>60	---
[1]STF:									
Smithdale part	B	None	---	---	>6.0	---	---	>60	---
Luverne part	C	None	---	---	>6.0	---	---	>60	---
Sumter:									
SuE2	C	None	---	---	>6.0	---	---	20-40	Rippable
Trebloc:									
Tr	D	None	---	---	0.5-1.0	Apparent	Jan-Apr	>60	---

[1]This map unit is made up of two or more dominant kinds of soil. See description of the map unit for composition and behavior characteristics of the whole map unit.

TABLE 18.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series]

Soil name	Family or higher taxonomic class
Harleston	Coarse-loamy, siliceous, thermic Aquic Paleudults
Jena	Coarse-loamy, siliceous, thermic Fluventic Dystrochrepts
Kipling	Fine, montmorillonitic, thermic Vertic Hapludalfs
Kirkville	Coarse-loamy, siliceous, thermic Fluvaquentic Dystrochrepts
Leeper	Fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
*Lexington	Fine-silty, mixed, thermic Typic Paleudalfs
Luverne	Clayey, mixed, thermic Typic Hapludults
Mantachie	Fine-loamy, siliceous, acid, thermic Aeric Fluvaquents
Marietta	Fine-loamy, siliceous, thermic Fluvaquentic Eutrochrepts
Mathiston	Fine-silty, siliceous, acid, thermic Aeric Fluvaquents
Mooreville	Fine-loamy, siliceous, thermic Fluvaquentic Dystrochrepts
Ora	Fine-loamy, siliceous, thermic Typic Fragiudults
Pheba	Coarse-silty, siliceous, thermic Glossaquic Fragiudults
Saffell	Loamy-skeletal, siliceous, thermic Typic Hapludults
Savannah	Fine-loamy, siliceous, thermic Typic Fragiudults
Smithdale	Fine-loamy, siliceous, thermic Typic Paleudults
Sumter	Fine-silty, carbonatic, thermic Rendollic Eutrochrepts
*Trebloc	Fine-silty, siliceous, thermic Typic Paleaquults

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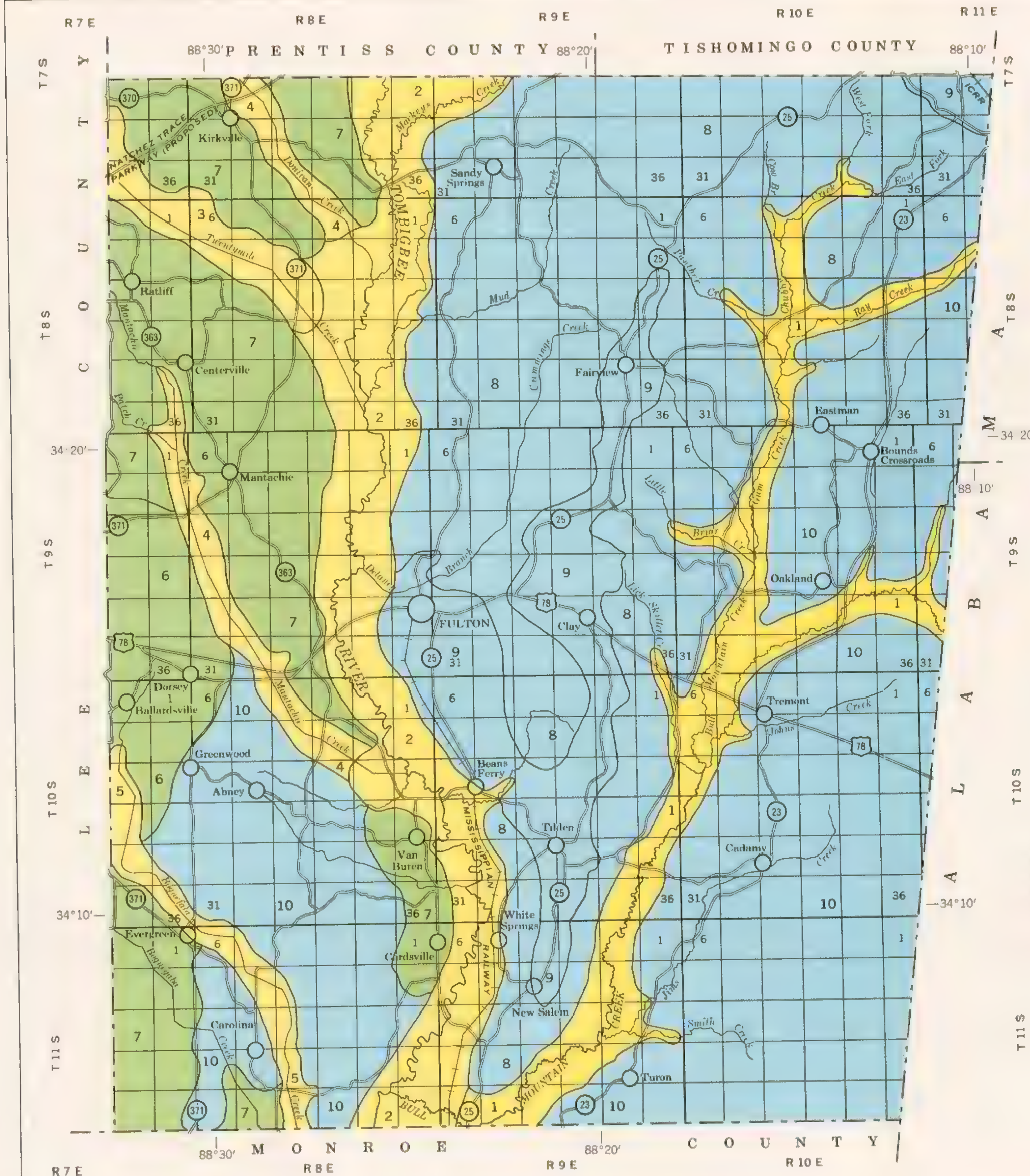


LEGEND

AREAS DOMINATED BY NEARLY LEVEL SOILS SUBJECT TO FLOODING

1 JENA-KIRKVILLE-MANTACHIE: Well drained, moderately well drained, and somewhat poorly drained, loamy soils on flood plains

2 KIRKVILLE-MANTACHIE-MOOREVILLE: Moderately well drained and somewhat poorly drained, loamy soils on flood plains

3 LEEPER-MARIETTA: Somewhat poorly drained and moderately well drained, clayey and loamy soils on flood plains

4 MANTACHIE: Somewhat poorly drained, loamy soils on flood plains

5 MANTACHIE-MARIETTA: Somewhat poorly drained and moderately well drained, loamy soils on flood plains

AREAS DOMINATED BY NEARLY LEVEL TO STRONGLY SLOPING, UPLAND SOILS

6 ORA-KIPLING-SUMTER: Moderately well drained, loamy soils that have a fragipan; somewhat poorly drained, acid, clayey soils; and well drained, calcareous, clayey soils

7 ORA-SAVANNAH-PHEBA: Moderately well drained and somewhat poorly drained, loamy soils that have a fragipan

AREAS DOMINATED BY HILLY, UPLAND SOILS

8 SMITHDALE: Well drained, loamy soils on ridges and steep side slopes

9 SMITHDALE-LEXINGTON: Well drained, loamy soils on broad ridges and steep side slopes

10 SMITHDALE-LUVERNE: Well drained soils that have a loamy or clayey subsoil and are on narrow ridgetops and steep side slopes

*Terms for texture refer to the surface layer of the major soils, unless indicated otherwise in the descriptive heading.

Compiled 1978

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSISSIPPI AGRICULTURAL AND
FORESTRY EXPERIMENT STATION

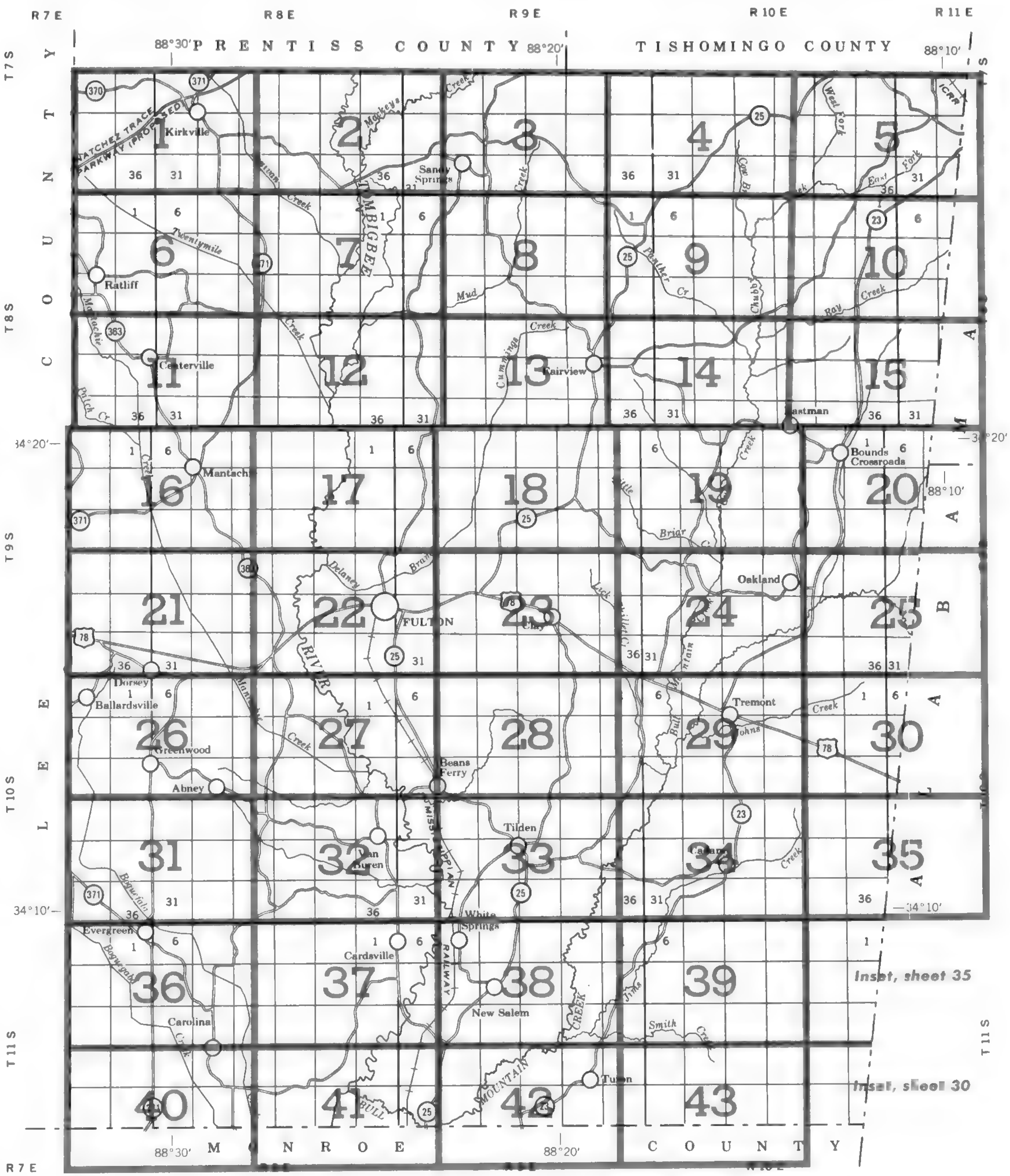
GENERAL SOIL MAP

ITAWAMBA COUNTY, MISSISSIPPI

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km



INDEX TO MAP SHEETS
ITAWAMBA COUNTY, MISSISSIPPI

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNATIONS

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label)
- Located object (label)
- Tank (label)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label)
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

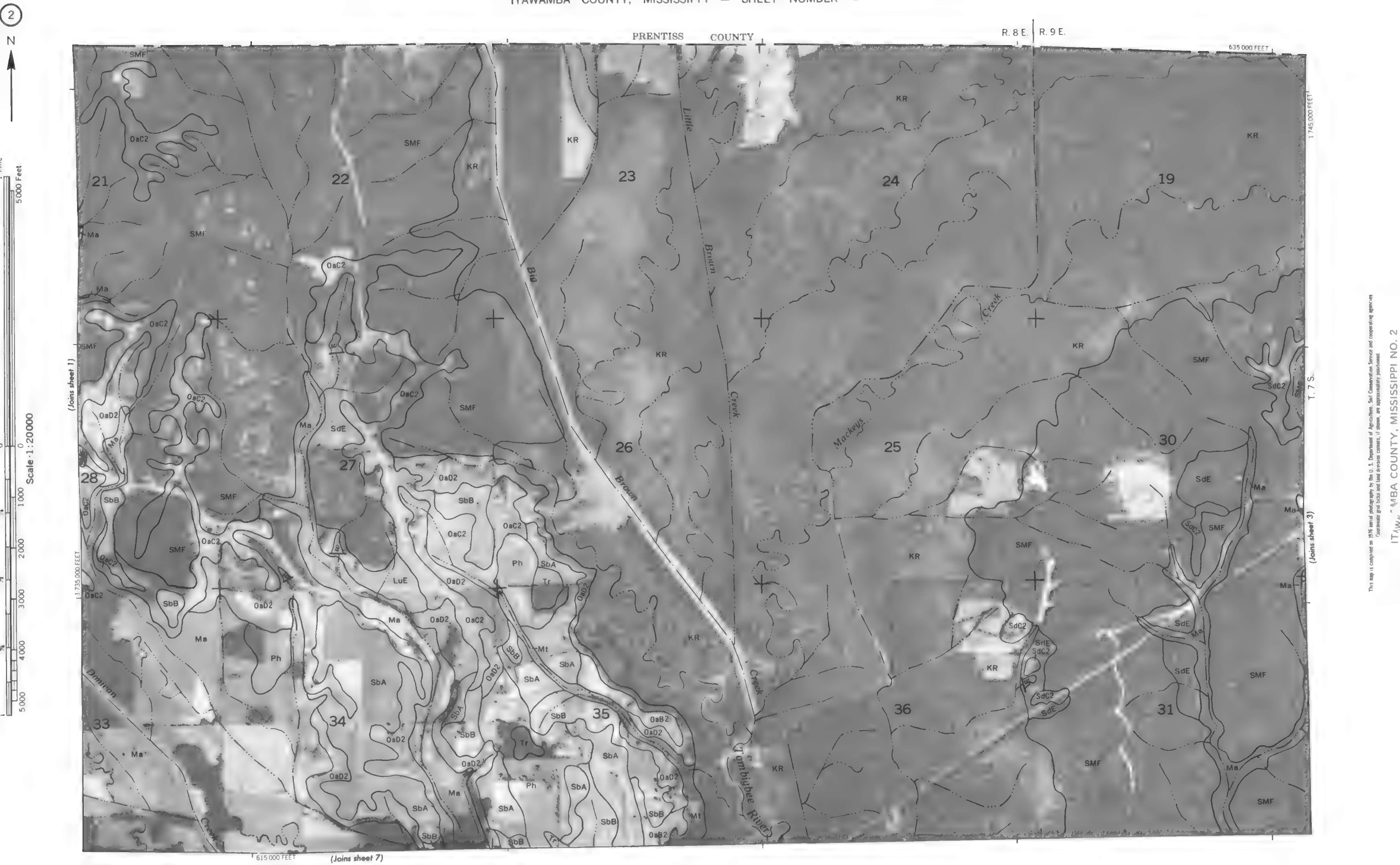
SOIL LEGEND

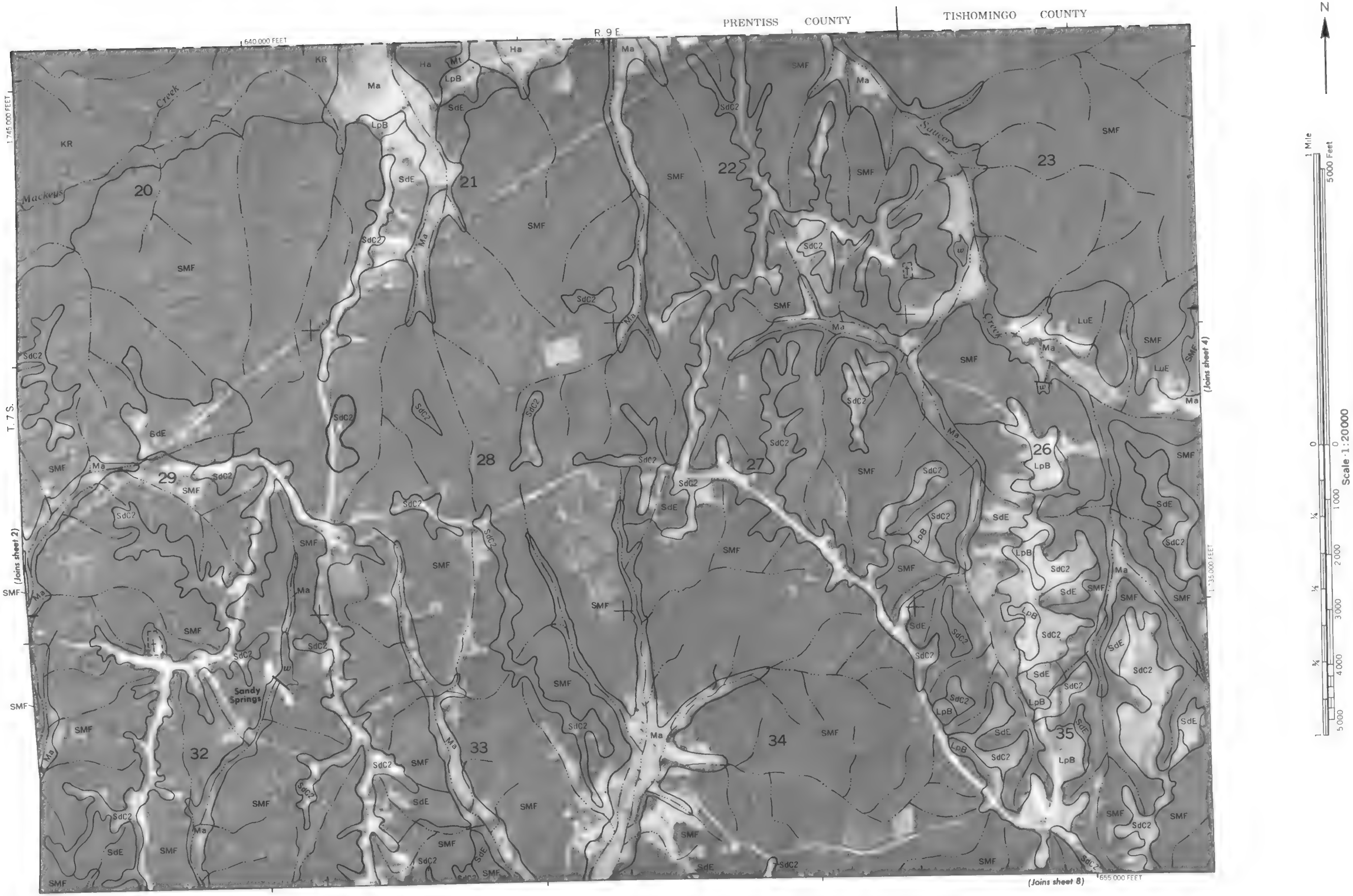
The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly defined 1/; otherwise, it is a small letter. The third letter, always a capital, shows the slope. Symbols without slope letters are those of nearly level soils. A final number, 2 in the symbol, shows the soil is eroded.

SYMBOL	NAME
Ha	Harleston fine sandy loam
Je	Jena loam
JK	Jena-Kirkville association 1/
KpB2	Kipling silty clay loam, 2 to 5 percent slopes, eroded
KpC2	Kipling silty clay loam, 5 to 8 percent slopes, eroded
KpD2	Kipling silty clay loam, 8 to 12 percent slopes, eroded
KR	Kirkville-Mantachie association 1/
KT	Kirkville, Mantachie and Mooreville soils 1/
Le	Leeper silty clay
LpB	Lexington silt loam, 2 to 5 percent slopes
LuB2	Luverne fine sandy loam, 2 to 5 percent slopes, eroded
LuC2	Luverne fine sandy loam, 5 to 8 percent slopes, eroded
LuD2	Luverne fine sandy loam, 8 to 12 percent slopes, eroded
LuE	Luverne fine sandy loam, 12 to 25 percent slopes
Ma	Mantachie loam
Mr	Marietta loam
Mt	Mathiston silt loam
OaB2	Ora fine sandy loam, 2 to 5 percent slopes, eroded
OaC2	Ora fine sandy loam, 5 to 8 percent slopes, eroded
OaD2	Ora fine sandy loam, 8 to 12 percent slopes, eroded
Ph	Phebe silt loam
Pt	Pits
SaF	Saffell gravelly sandy loam, 8 to 45 percent slopes
SbA	Savannah loam, 0 to 2 percent slopes
SbB	Savannah loam, 2 to 5 percent slopes
SdC2	Smithdale fine sandy loam, 5 to 8 percent slopes, eroded
SdE	Smithdale fine sandy loam, 8 to 17 percent slopes
SMF	Smithdale association, hilly 1/
STF	Smithdale-Luverne association, hilly 1/
SuE2	Sumter silty clay, 8 to 17 percent slopes, eroded
Tr	Trebloc silt loam

1/ The composition of these units is more variable than that of others in the survey area, but has been controlled well enough to be interpreted for the expected use of the soils.

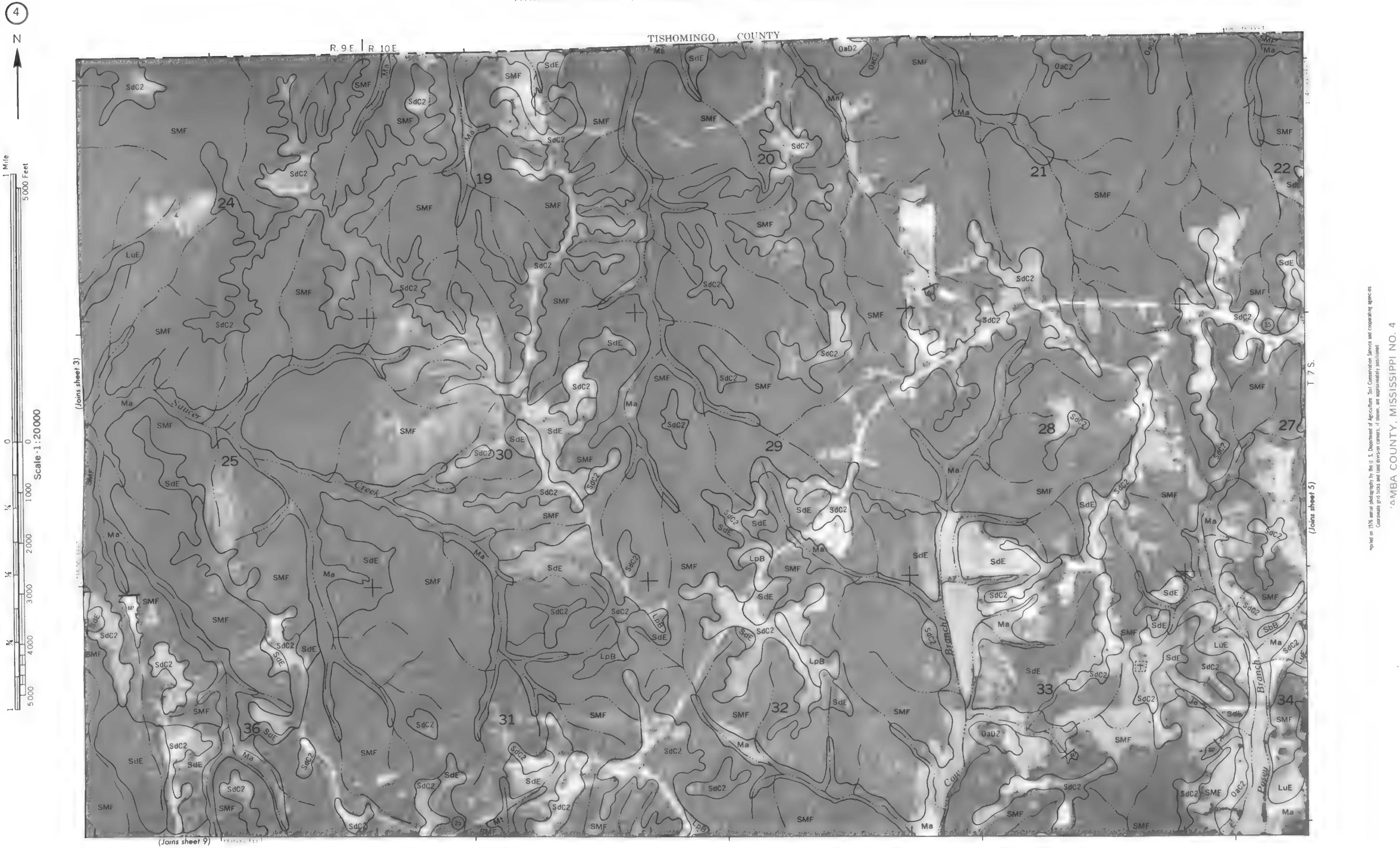

1
N
R. 7 E. | R. 8 E.
PRENTISS COUNTY
LEE COUNTY
T. 7 S.
Kirkville
Yeager Branch
Tynes Branch
Donivan Creek
Twentymile Creek
(Joins sheet 2)
(Joins sheet 6)
Scale 1:20000
1 Mile
5000 Feet

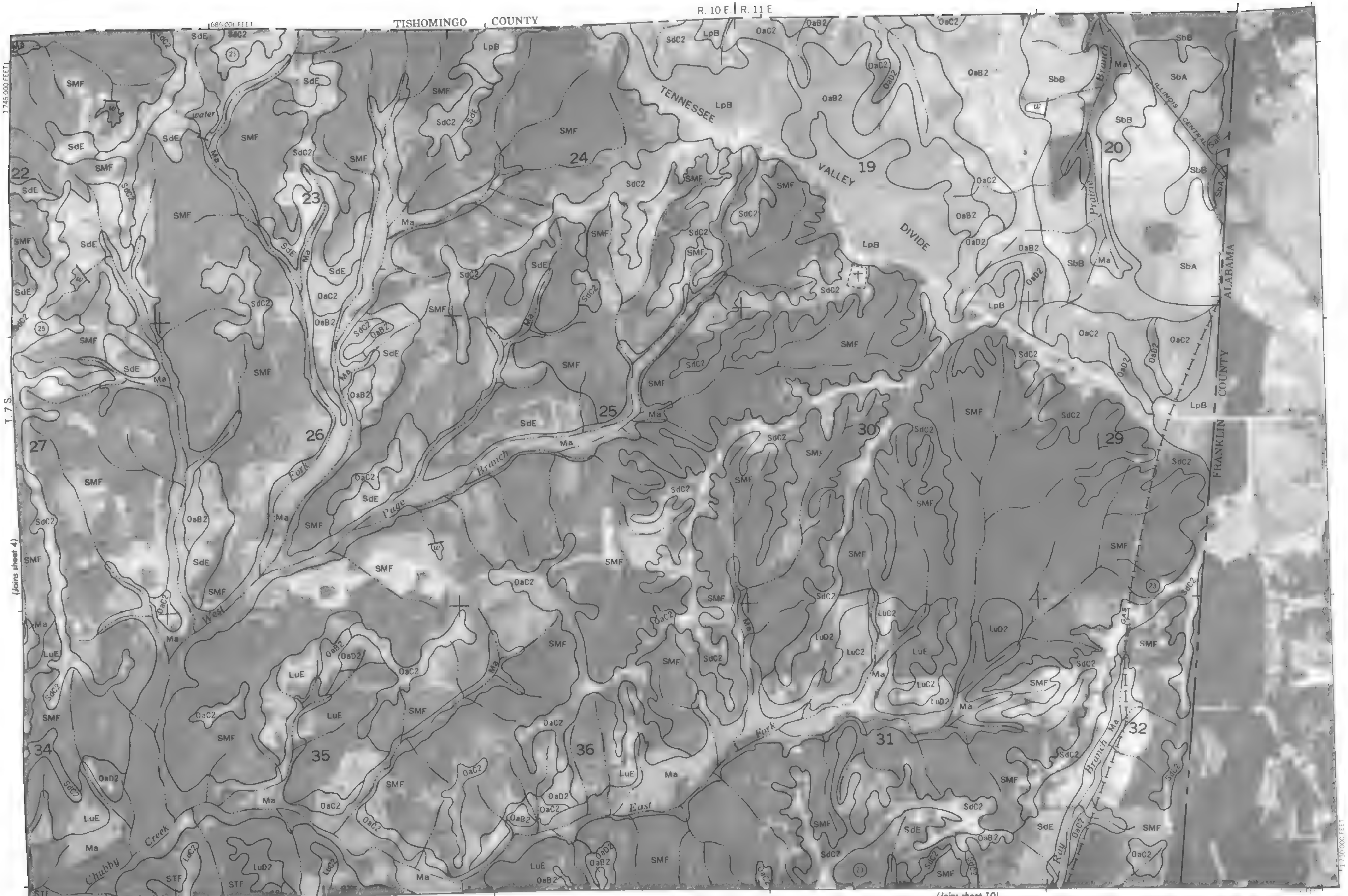

2
N
PRENTISS COUNTY
R. 8 E.
R. 9 E.
635 000 FEET
1 745 000 FEET
T. 7 S.
(Joins sheet 1)
(Joins sheet 3)
(Joins sheet 7)
615 000 FEET
1 735 000 FEET
Scale 1:20000
5000 Feet
0
1000
2000
3000
4000
5000
21
22
23
24
19
26
25
27
28
30
33
34
35
36
31
Little Brown Creek
Big Brown Creek
Mackeys Creek
Tombigbee River
Donivan Creek
SMF
OaC2
KR
Ma
SdE
OaD2
SbB
Ph
SbA
Tr
LuE
Mt
OaB2
SdC2
ITAWAMBA COUNTY, MISSISSIPPI NO. 2



This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI NO. 3


4
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
TISHOMINGO COUNTY
R. 9 E.
R. 10 E.
T. 7 S.
(Joins sheet 3)
(Joins sheet 5)
(Joins sheet 9)
Saucer
Creek
Branch
Posey
Branch
19
20
21
22
24
25
27
28
29
30
31
32
33
34
36
SMF
SdC2
SdE
Ma
LuE
OaC2
OaD2
LpB
SbB
Je
Mt
AMBA COUNTY, MISSISSIPPI NO. 4

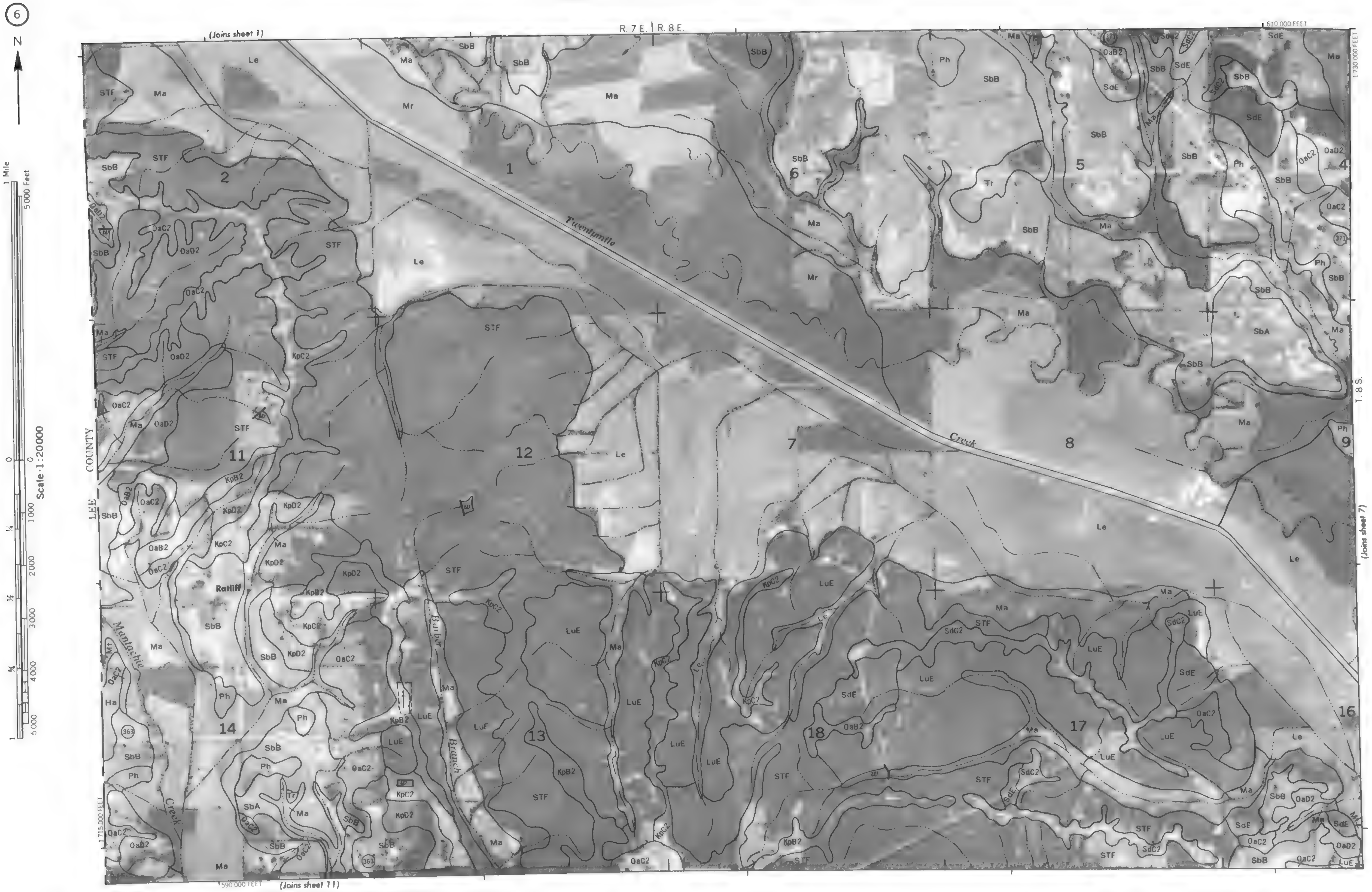


N

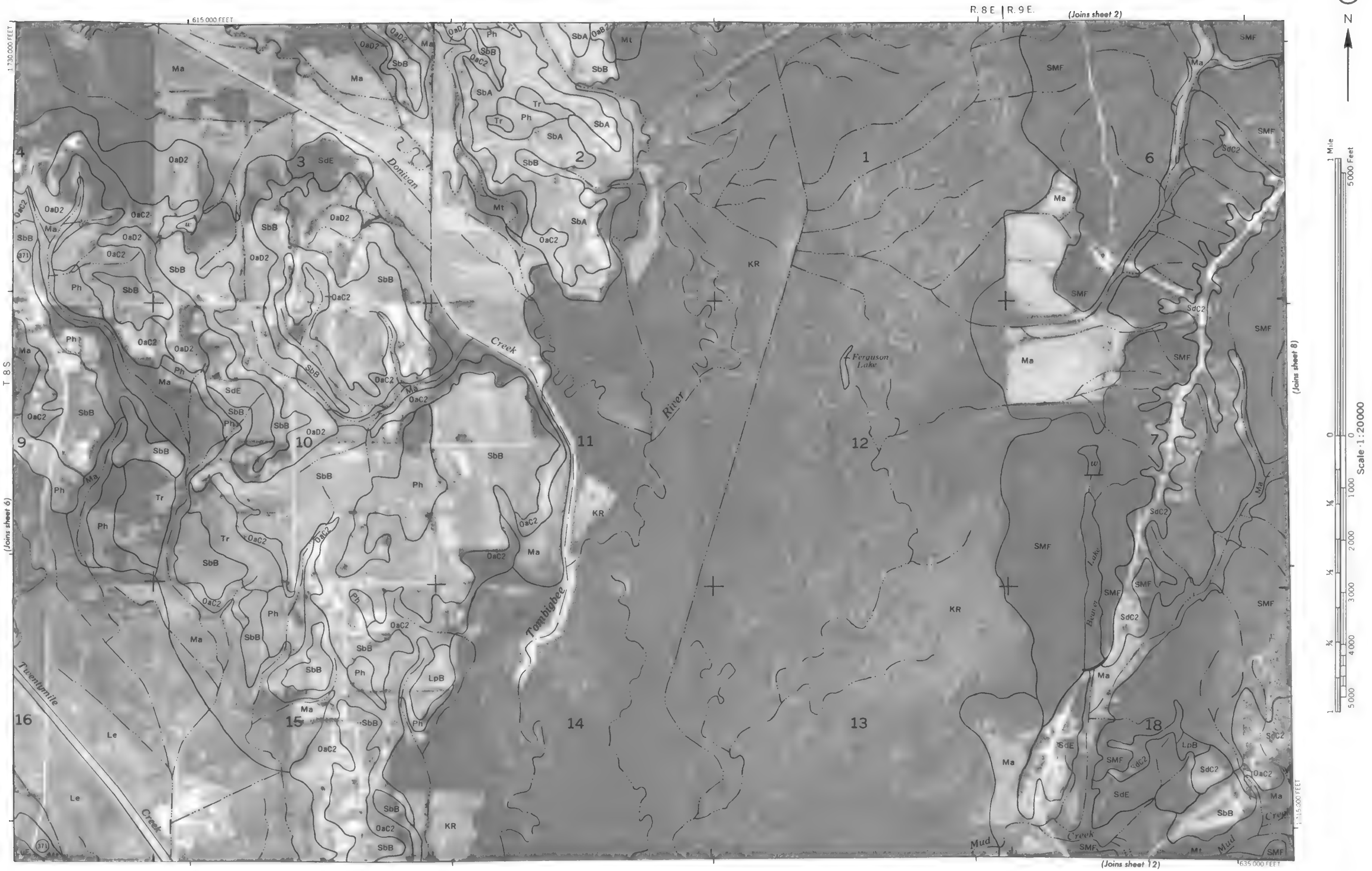
1 Mile
5000 Feet
0
1/4
1/2
3/4
1
0
1000
2000
3000
4000
5000
Scale 1:20000

ITAWAMBA COUNTY, MISSISSIPPI NO. 5

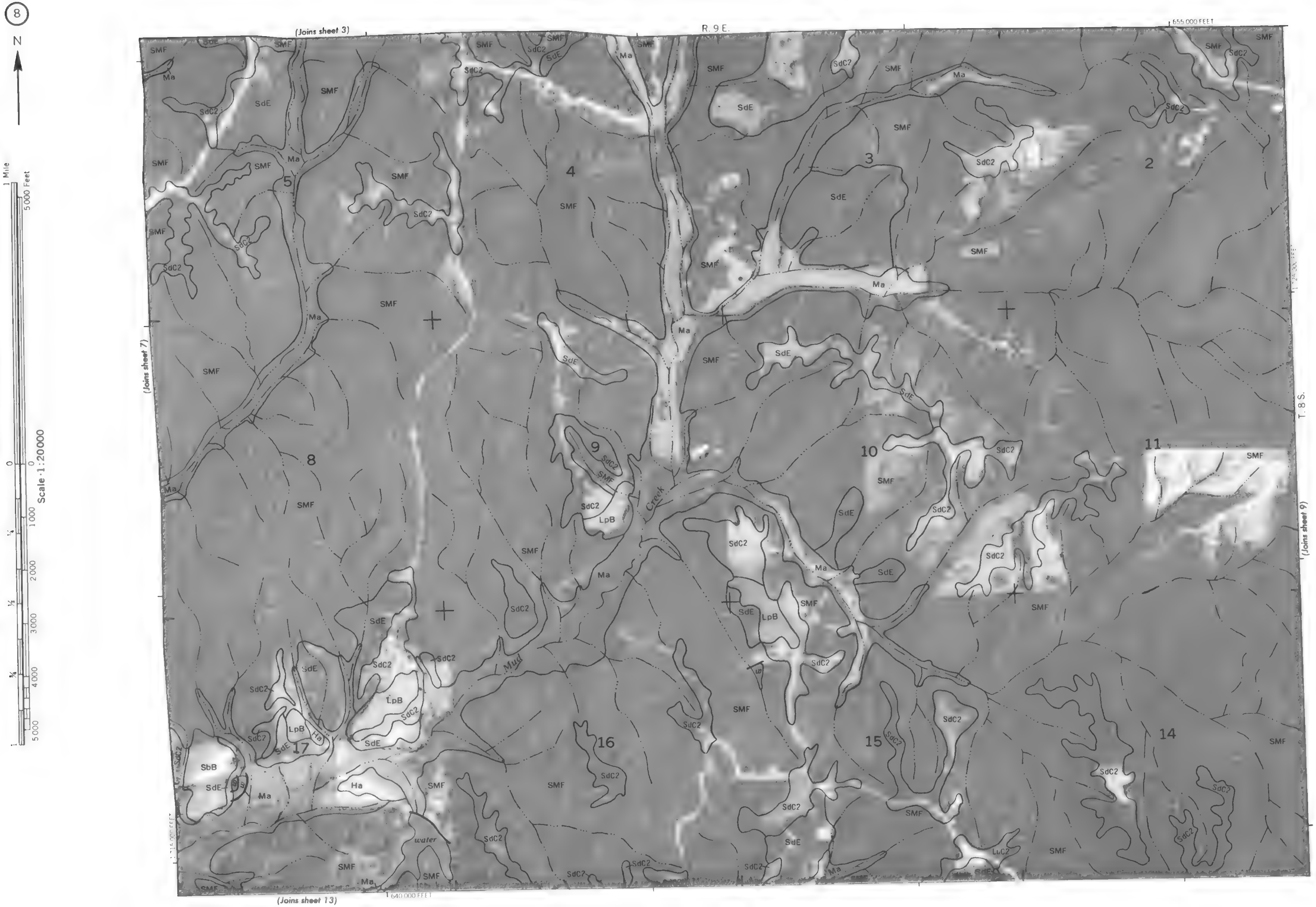
This map is compiled on 1976 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



...MBA COUNTY, MISSISSIPPI NO. 6

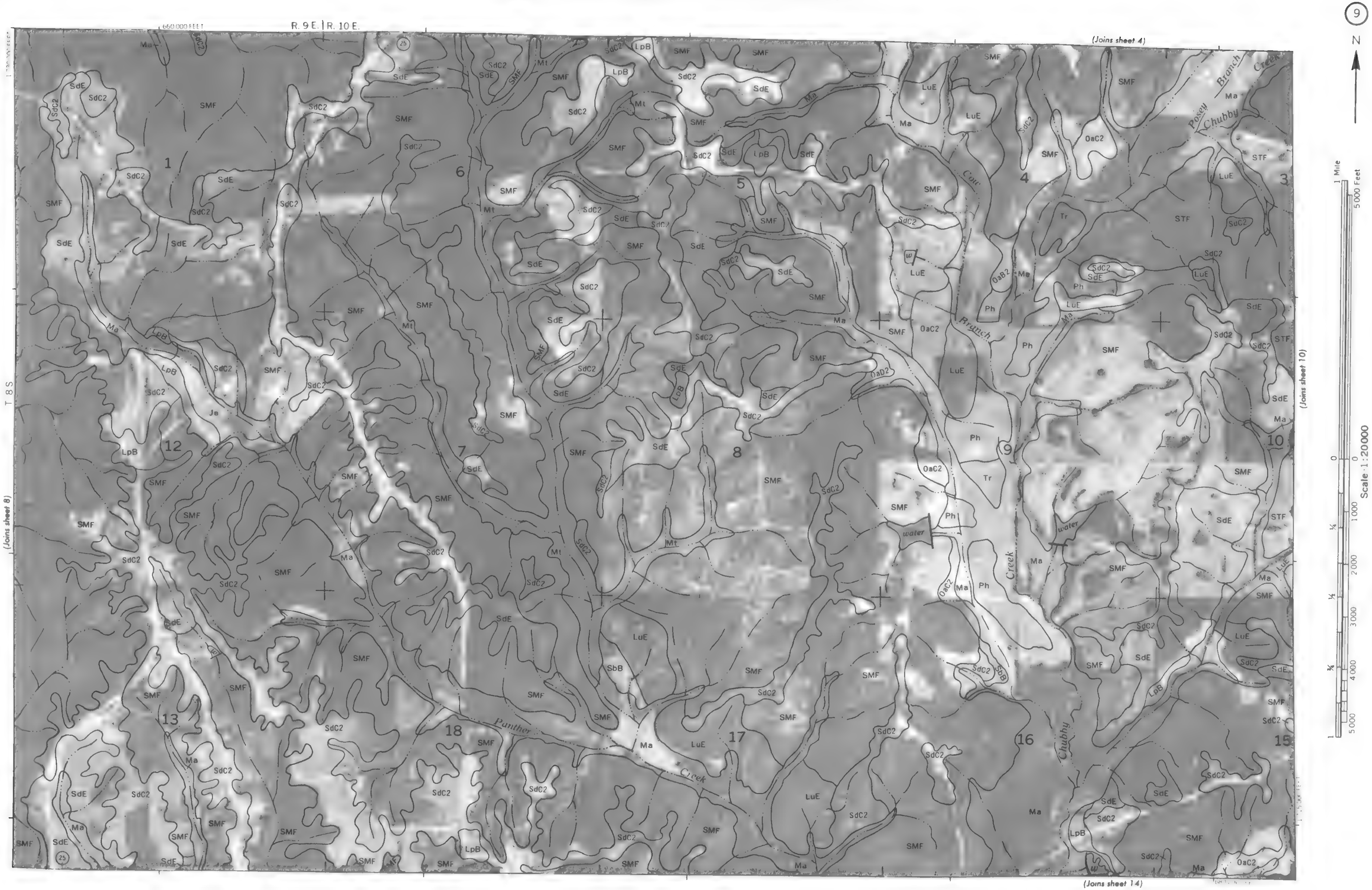


ITAWAMBA COUNTY, MISSISSIPPI NO. 7
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

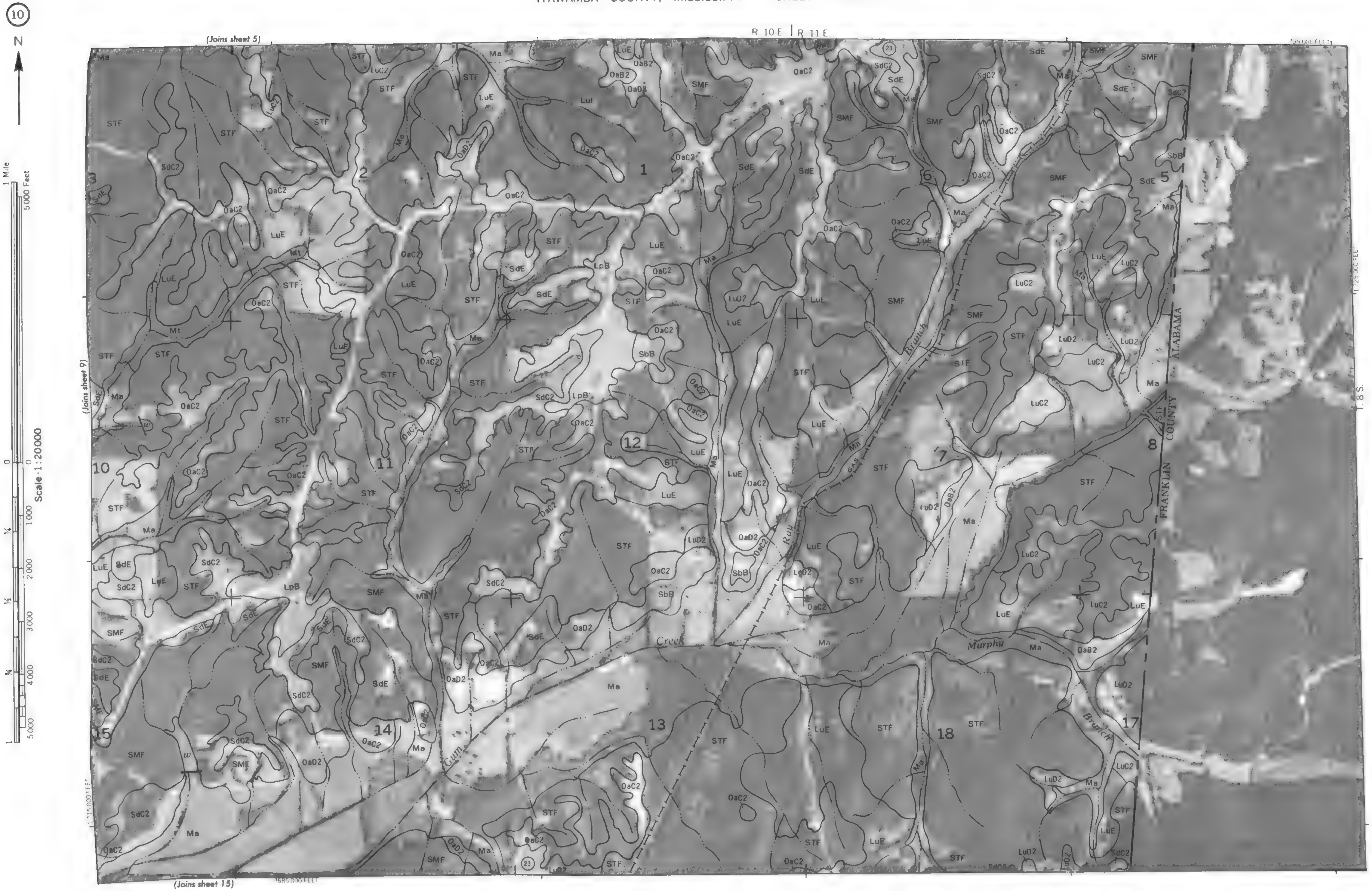


This map compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI NO. 8



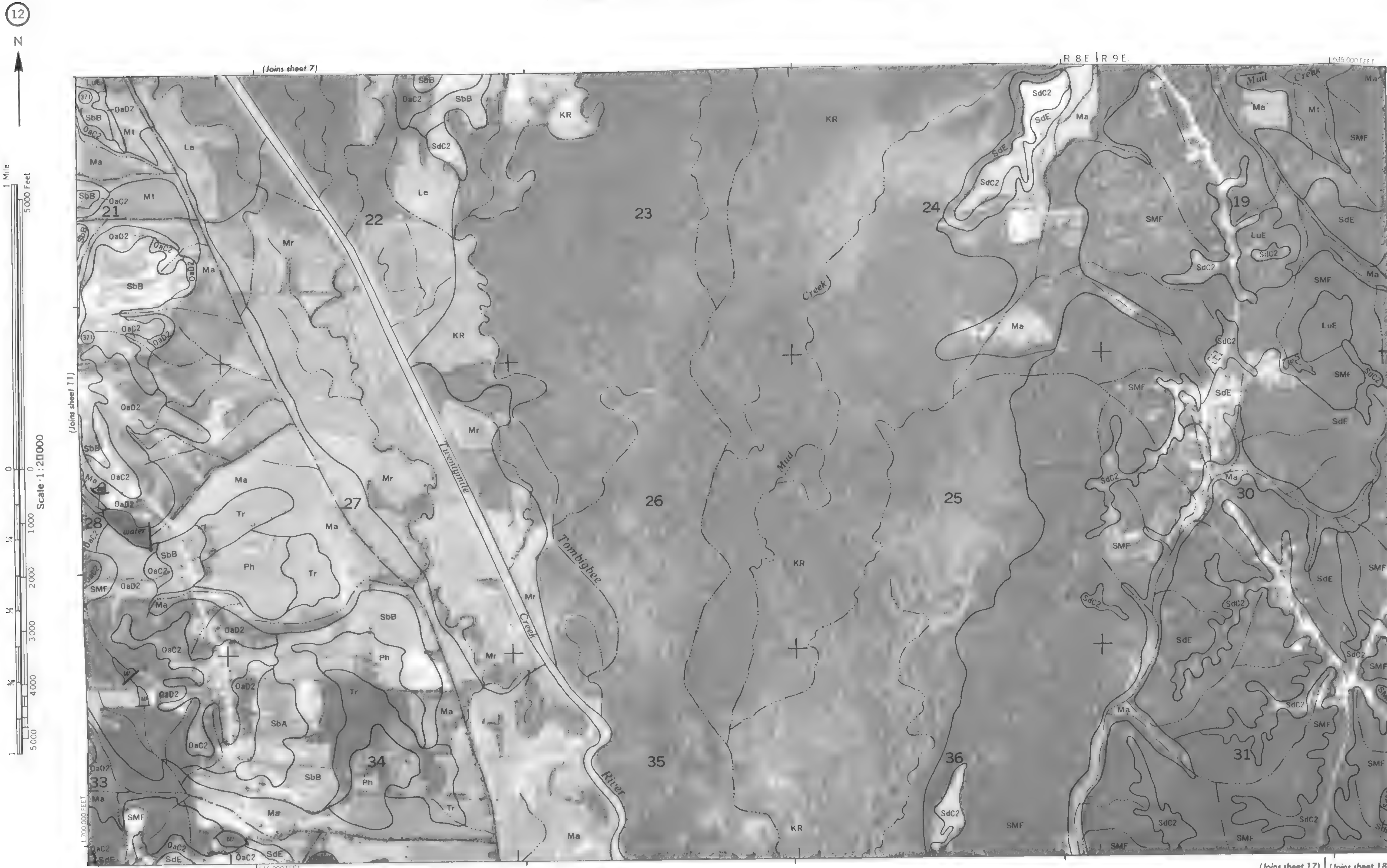
* This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI NO. 10

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

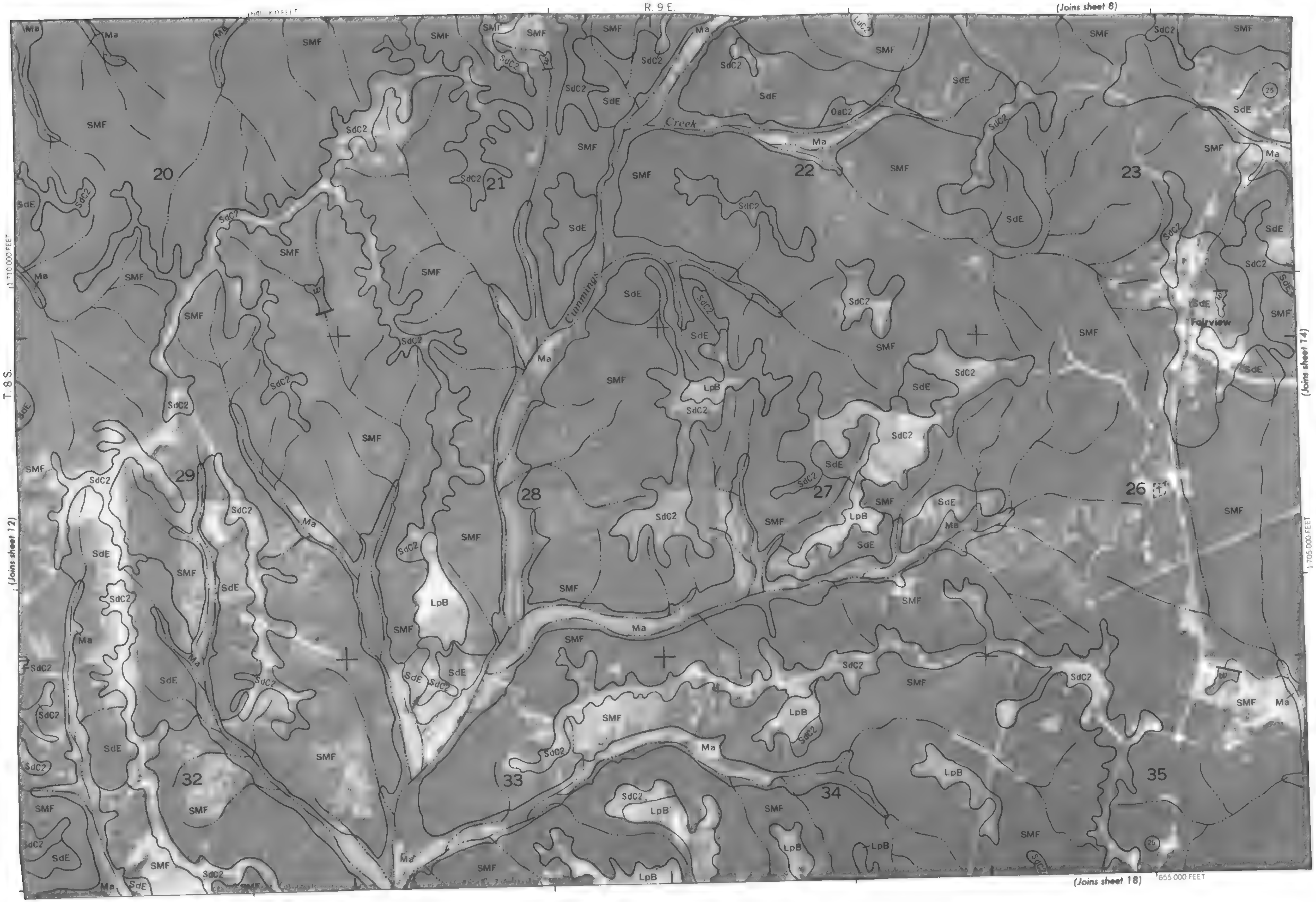


This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI NO. 12

13

N



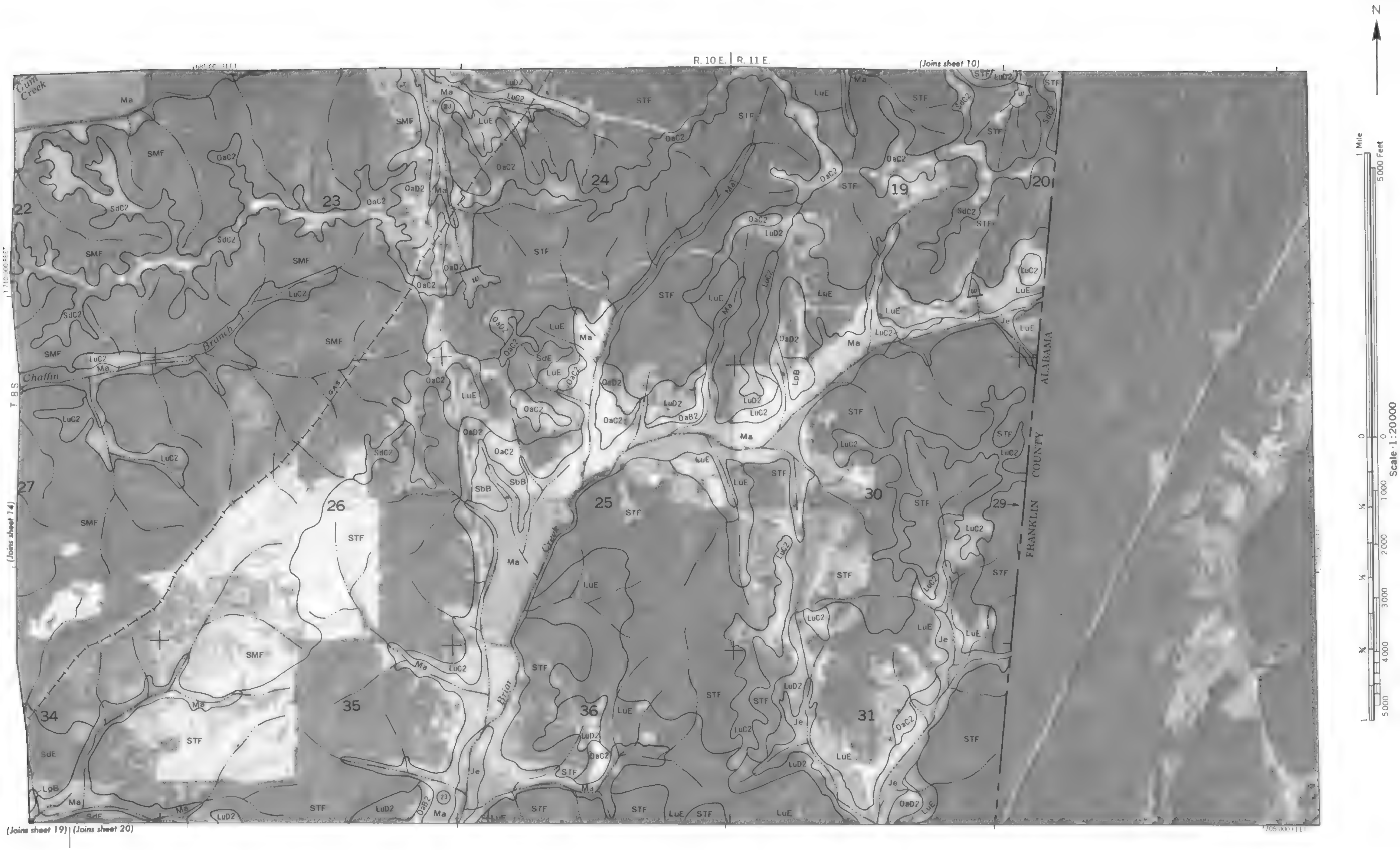
1 Mile
5000 Feet
Scale 1:20000

ITAWAMBA COUNTY, MISSISSIPPI NO. 13

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI NO. 14

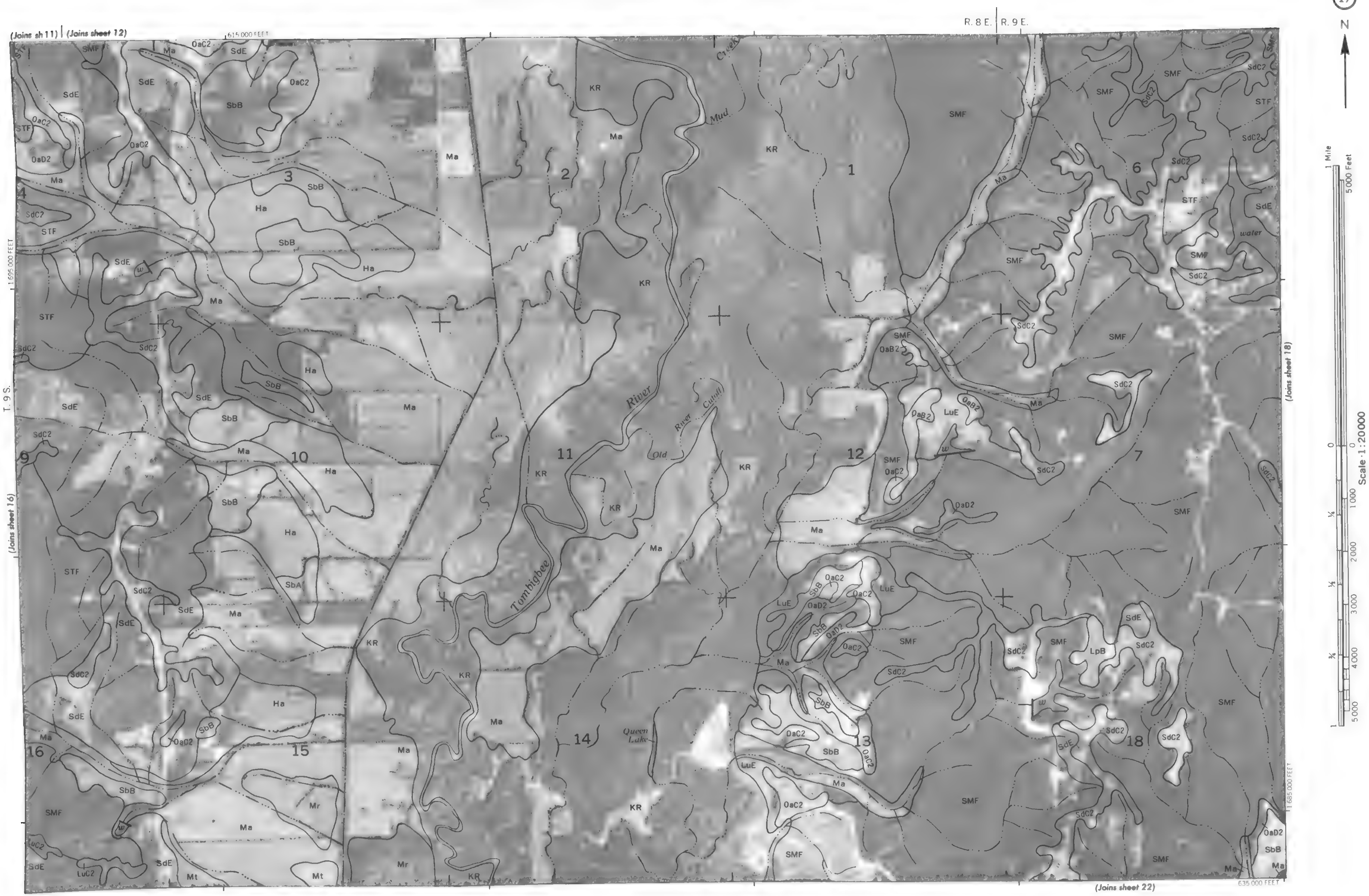
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



ITAWAMBA COUNTY, MISSISSIPPI NO. 15
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

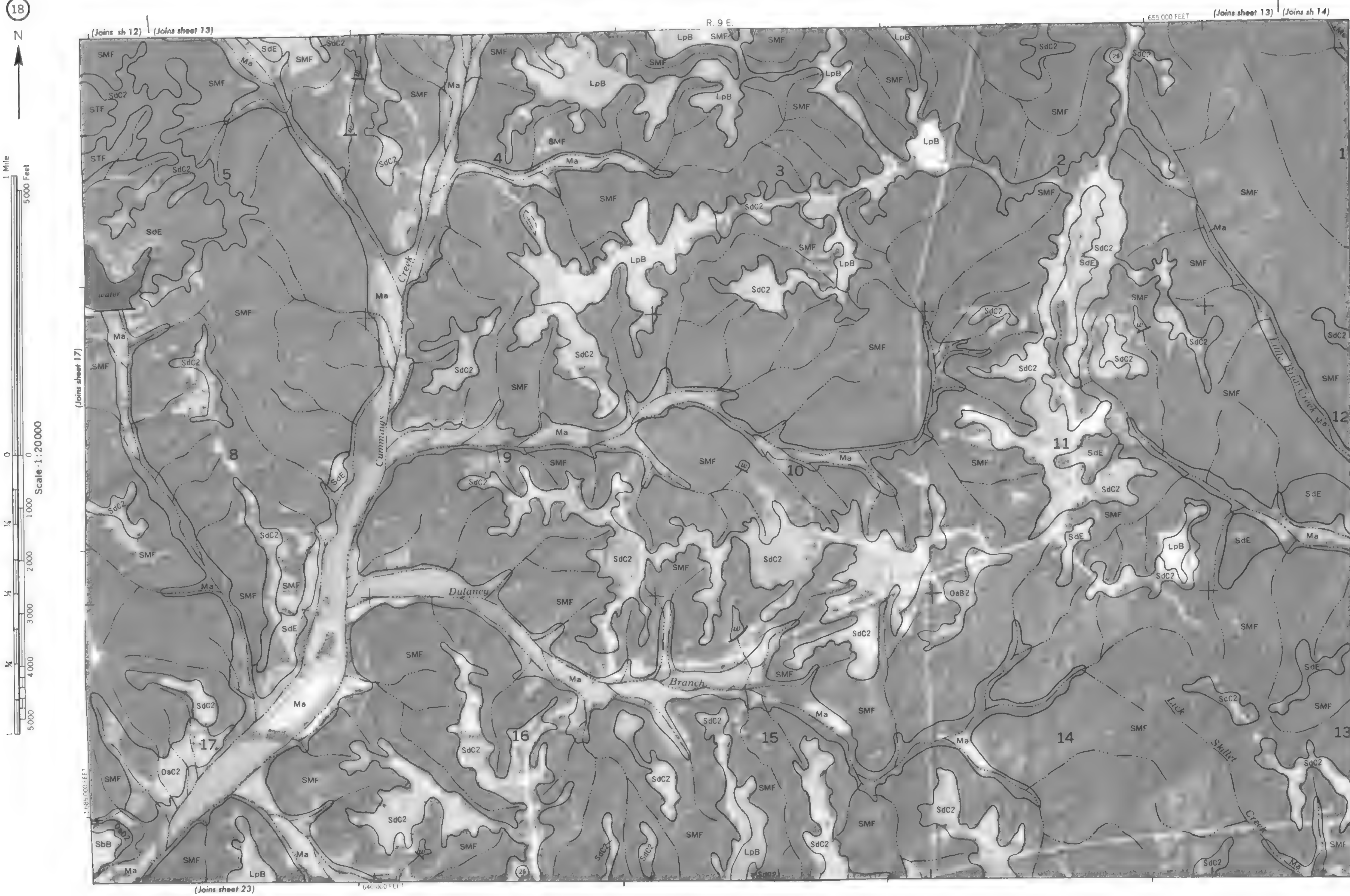
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI NO. 16

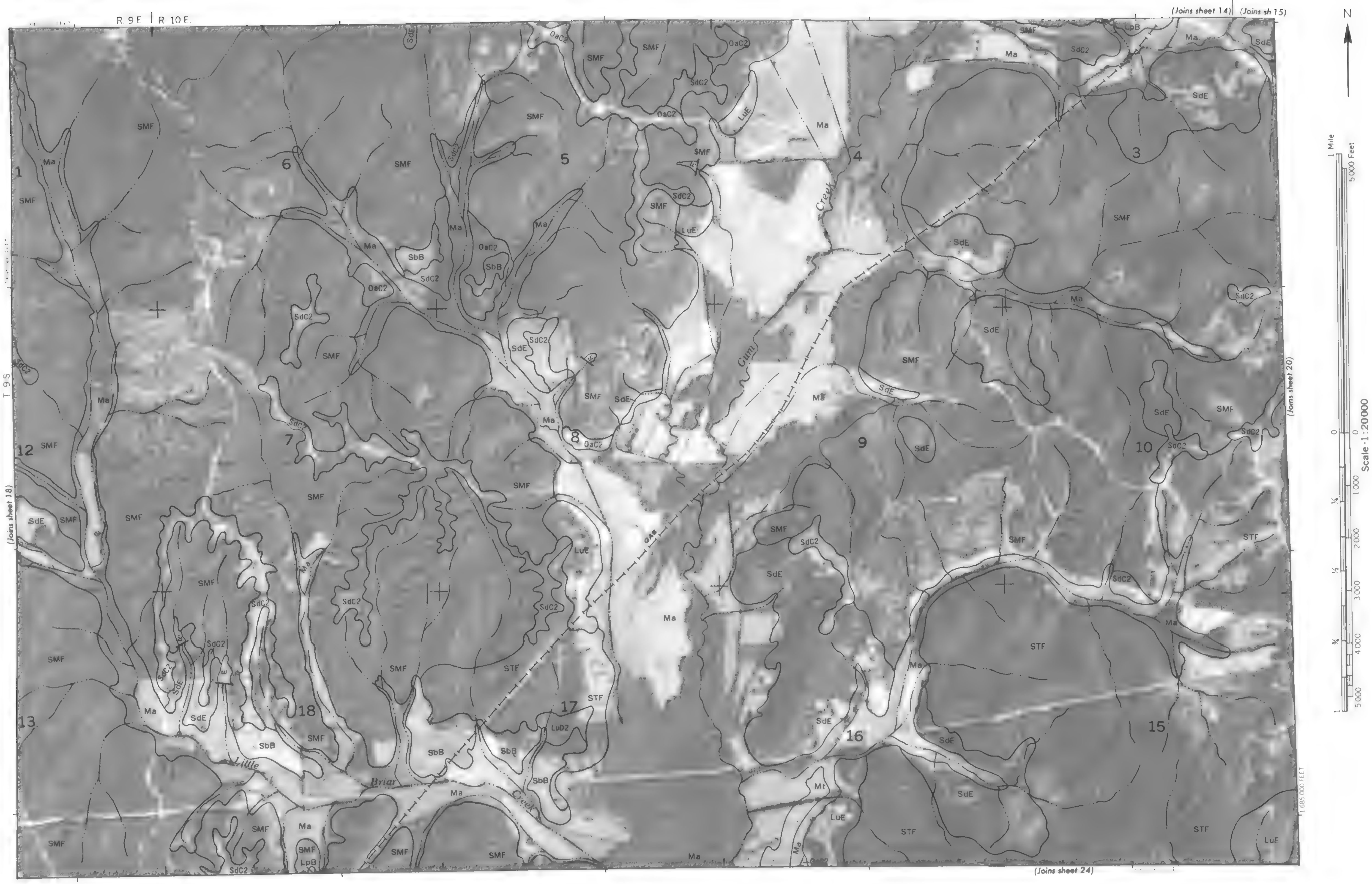


ITAWAMBA COUNTY, MISSISSIPPI NO. 17

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

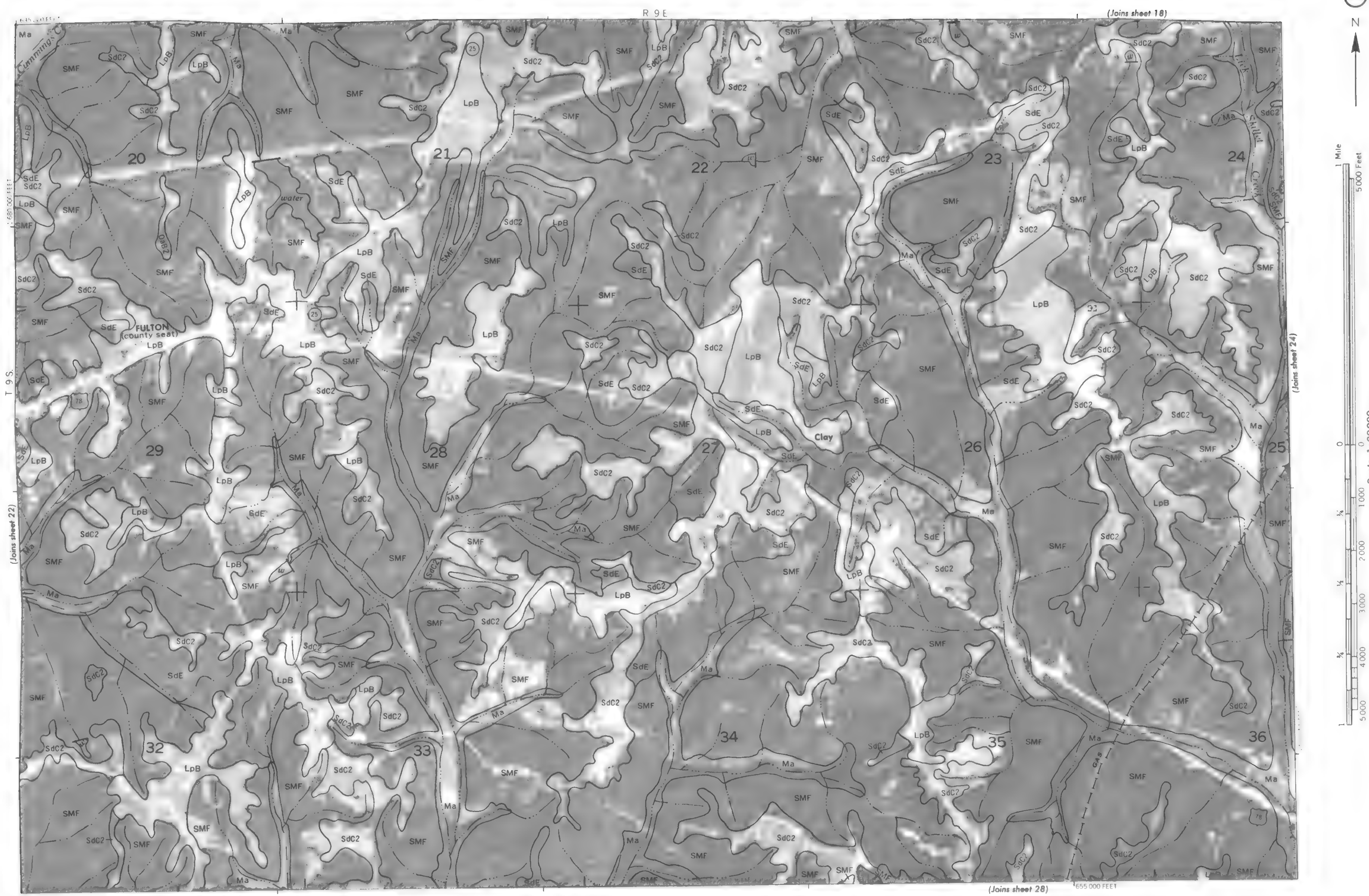

19
N
R. 9 E.
R. 10 E.
(Joins sheet 14)
(Joins sh 15)
(Joins sheet 18)
(Joins sheet 20)
(Joins sheet 24)
T 9 S
Gum
Creek
Little
Briar
Creek
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
1 685 000 FEET
1
3
4
5
6
7
8
9
10
12
13
15
16
17
18
SMF
Ma
SdC2
SdE
OaC2
SbB
LuE
STF
LuD2
Mt
LpB

ITAWAMBA COUNTY, MISSISSIPPI — SHEET NUMBER 20

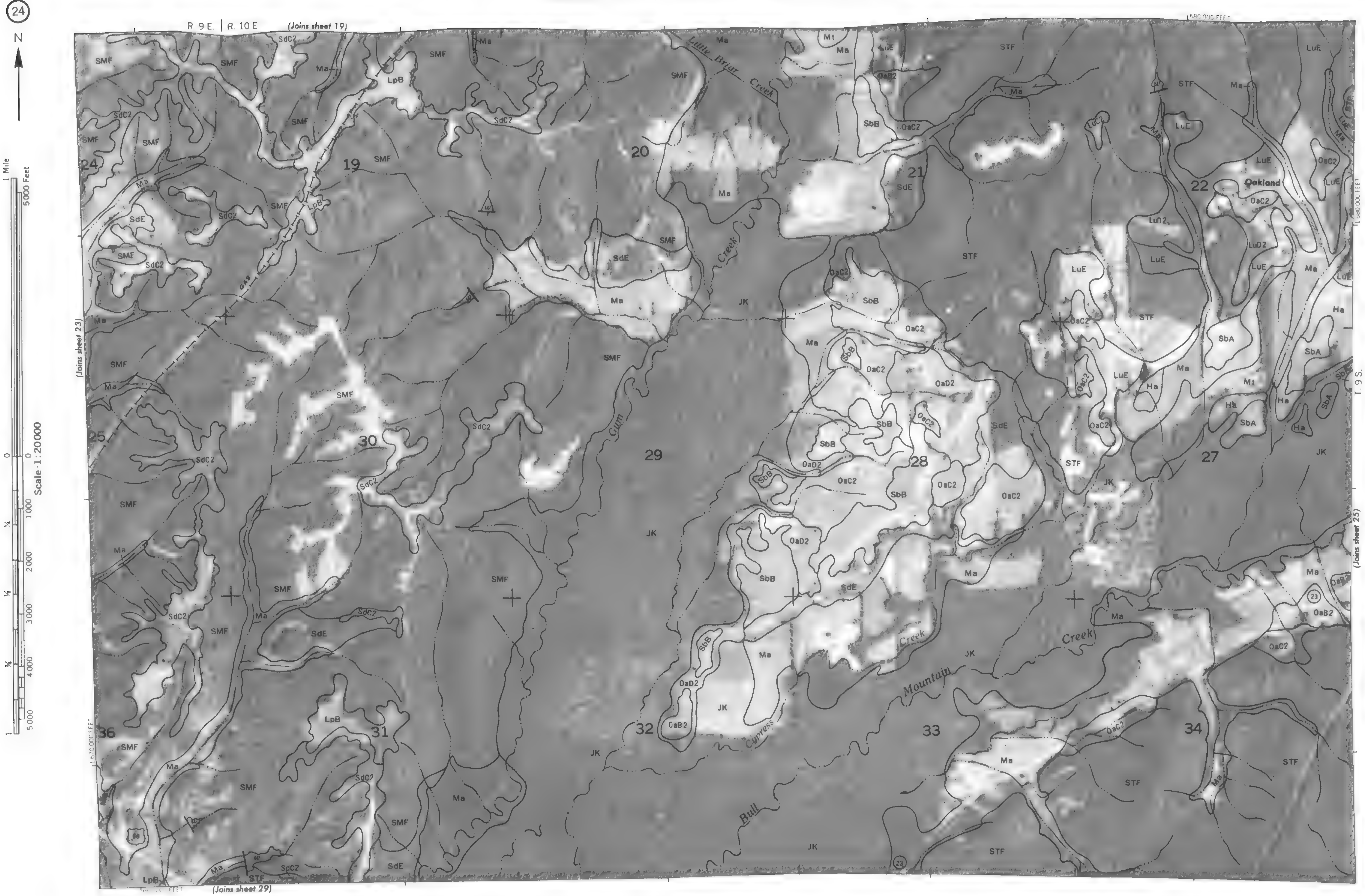
ITAWAMBA COUNTY, MISSISSIPPI NO. 20

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI NO. 22



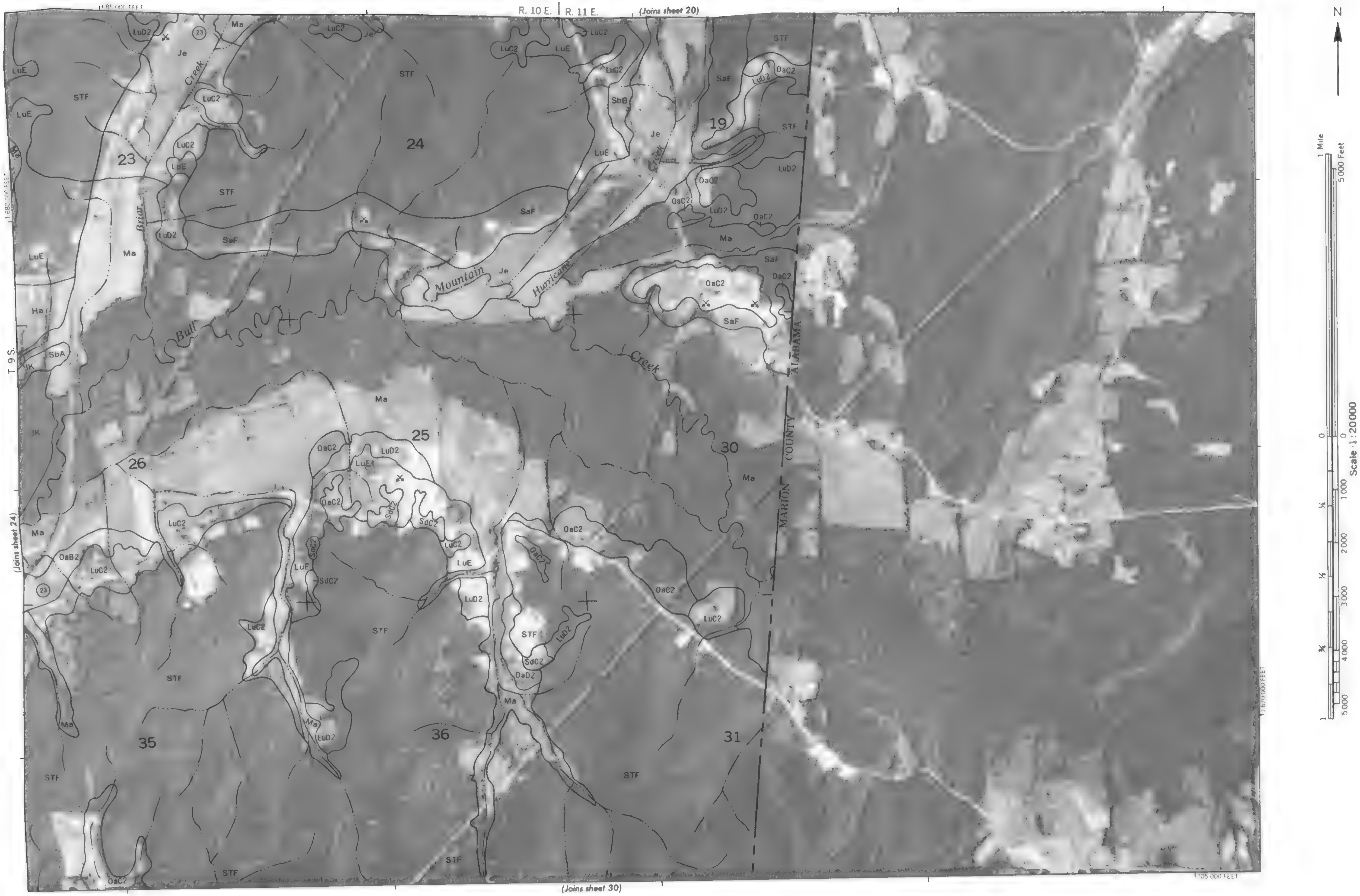
23
N
R 9 E
(Joins sheet 18)
(Joins sheet 24)
(Joins sheet 28)
(Joins sheet 22)
T 9 S.
FULTON
(county seat)
Cummings Cr.
Little Chiwapa Creek
Clay
Gas
water
655 000 FEET
680 000 FEET
20
21
22
23
24
25
26
27
28
29
32
33
34
35
36
SMF
SdC2
SdE
LpB
Ma
Scale 1:20000
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
ITAWAMBA COUNTY, MISSISSIPPI NO. 23



This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

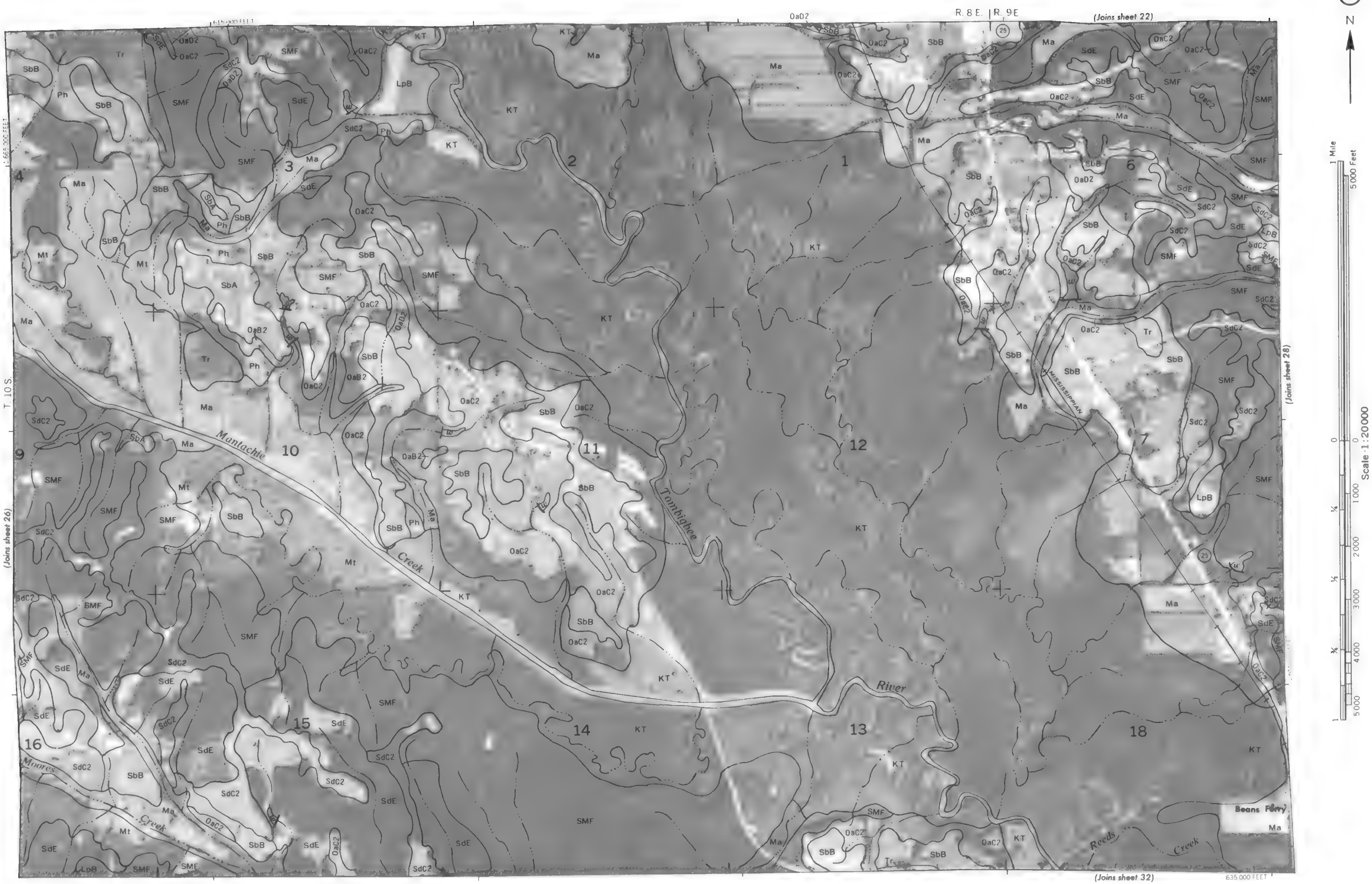
ITAWAMBA COUNTY, MISSISSIPPI NO. 25

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



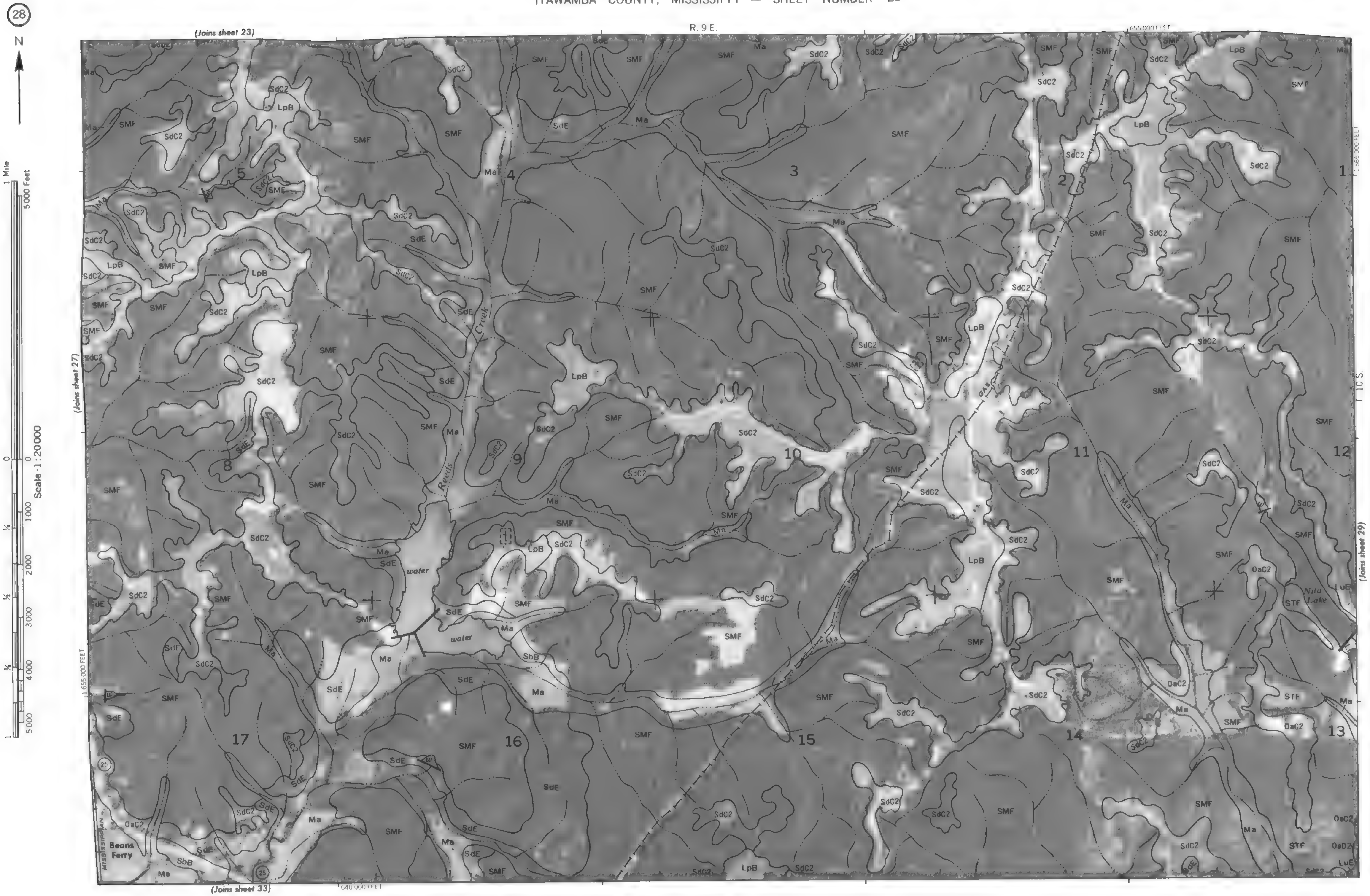
26

This map is compiled on 1973 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



ITAWAMBA COUNTY, MISSISSIPPI NO. 27

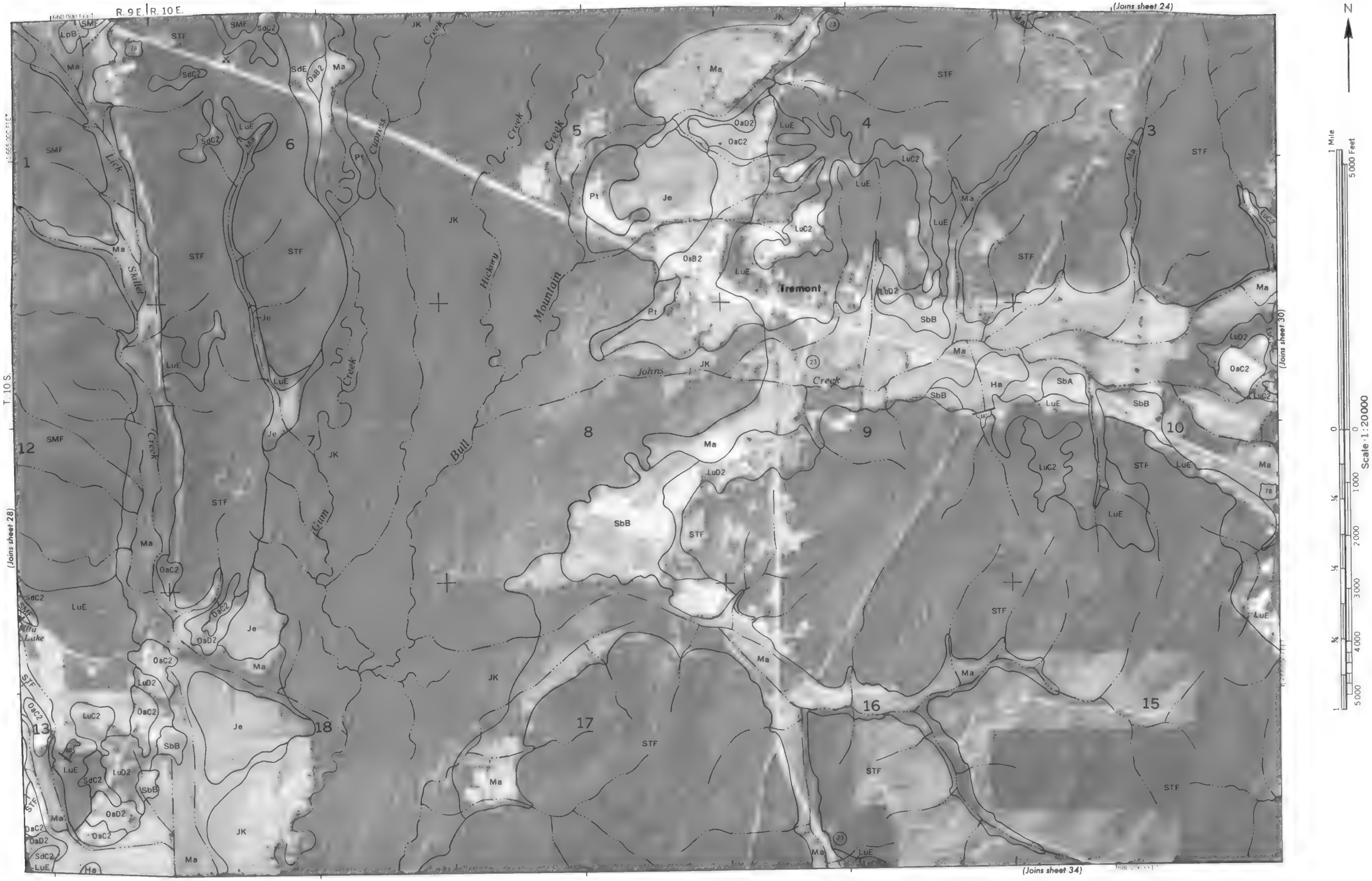
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



ITAWAMBA COUNTY, MISSISSIPPI NO. 28

ITAWAMBA COUNTY, MISSISSIPPI NO. 29

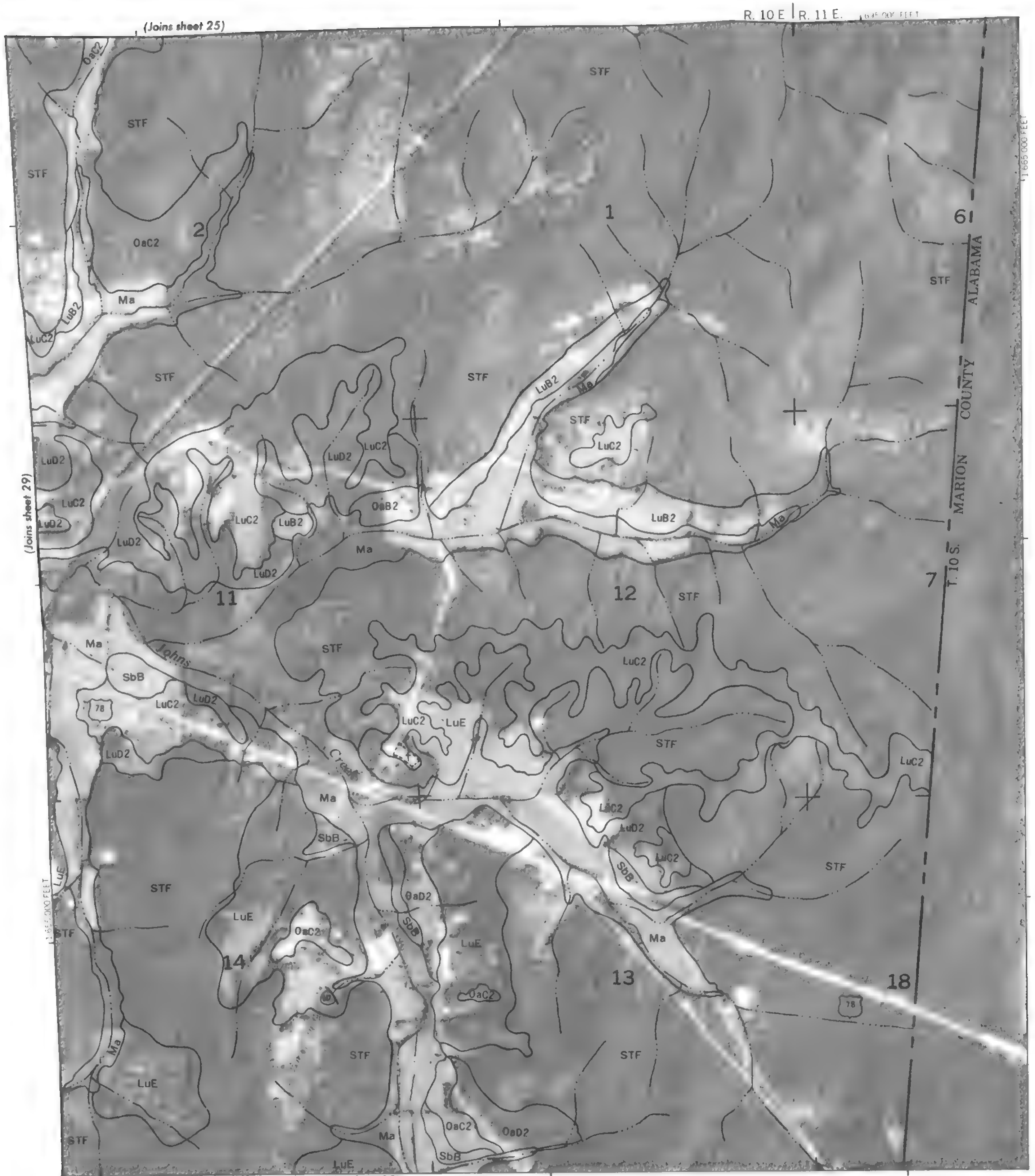
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

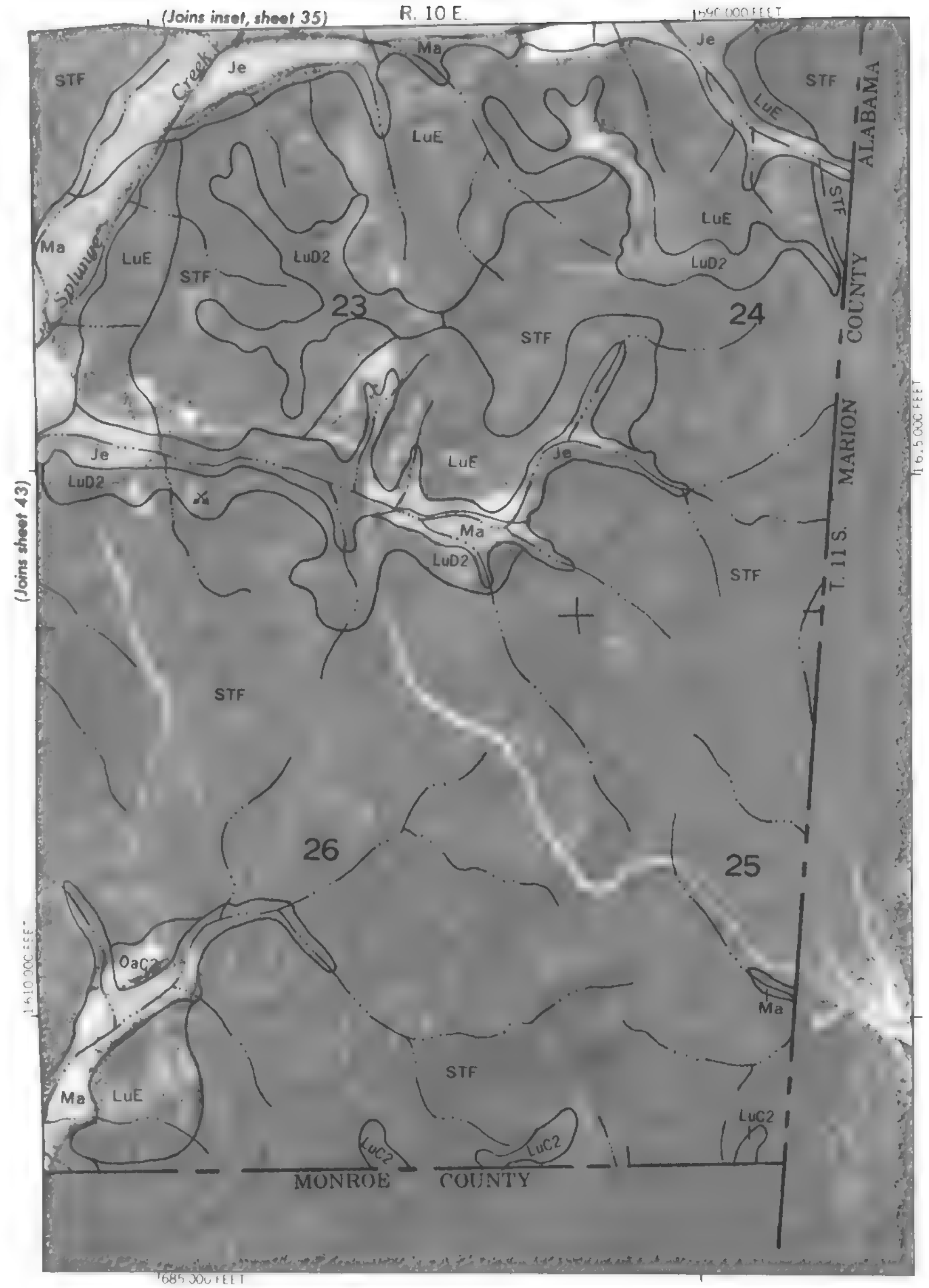


30

N

Scale 1:20000

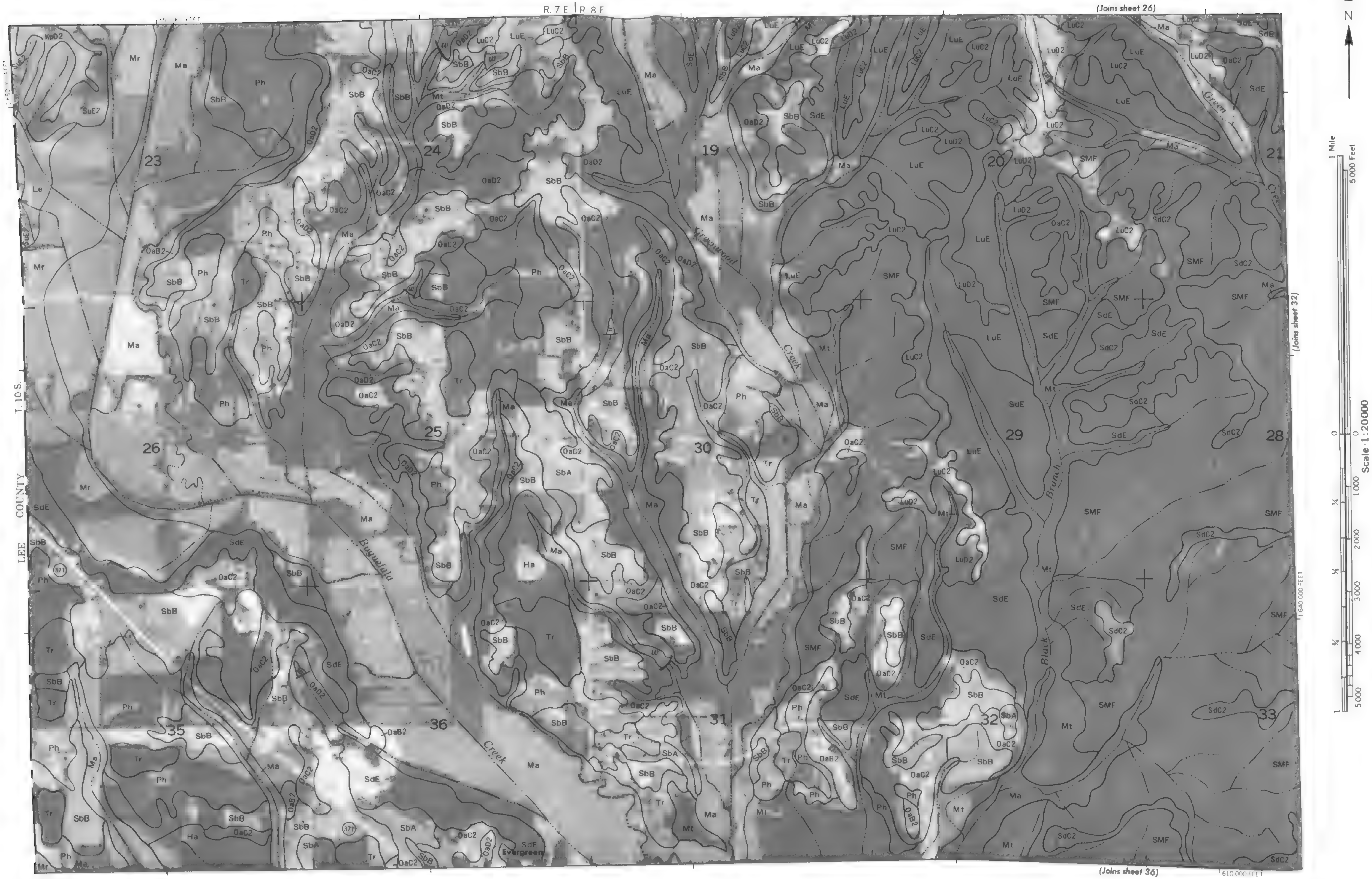




This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

ITAWAMBA COUNTY, MISSISSIPPI NO. 30

31

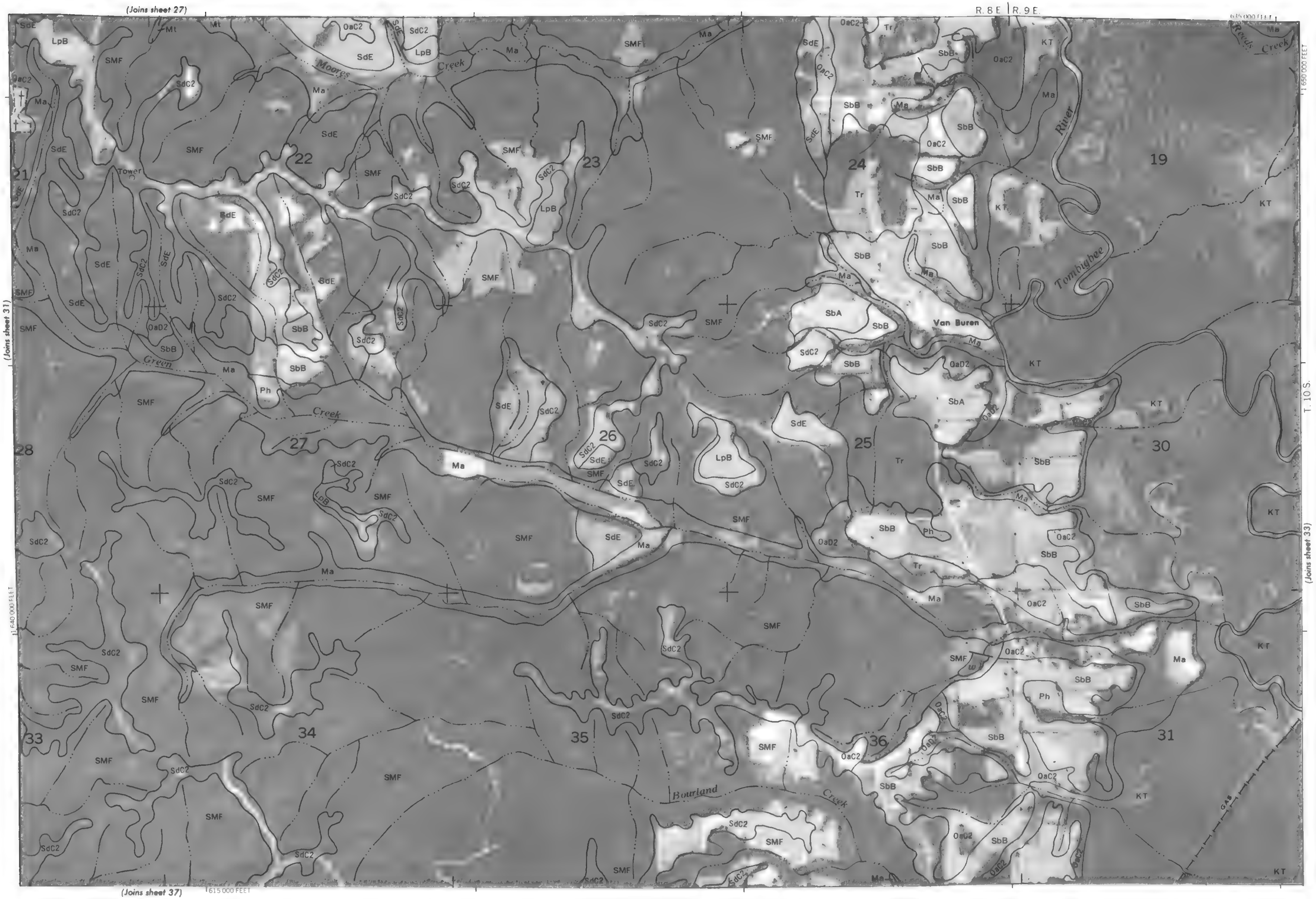


ITAWAMBA COUNTY, MISSISSIPPI NO. 31

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI — SHEET NUMBER 32

N



Scale 1:20000

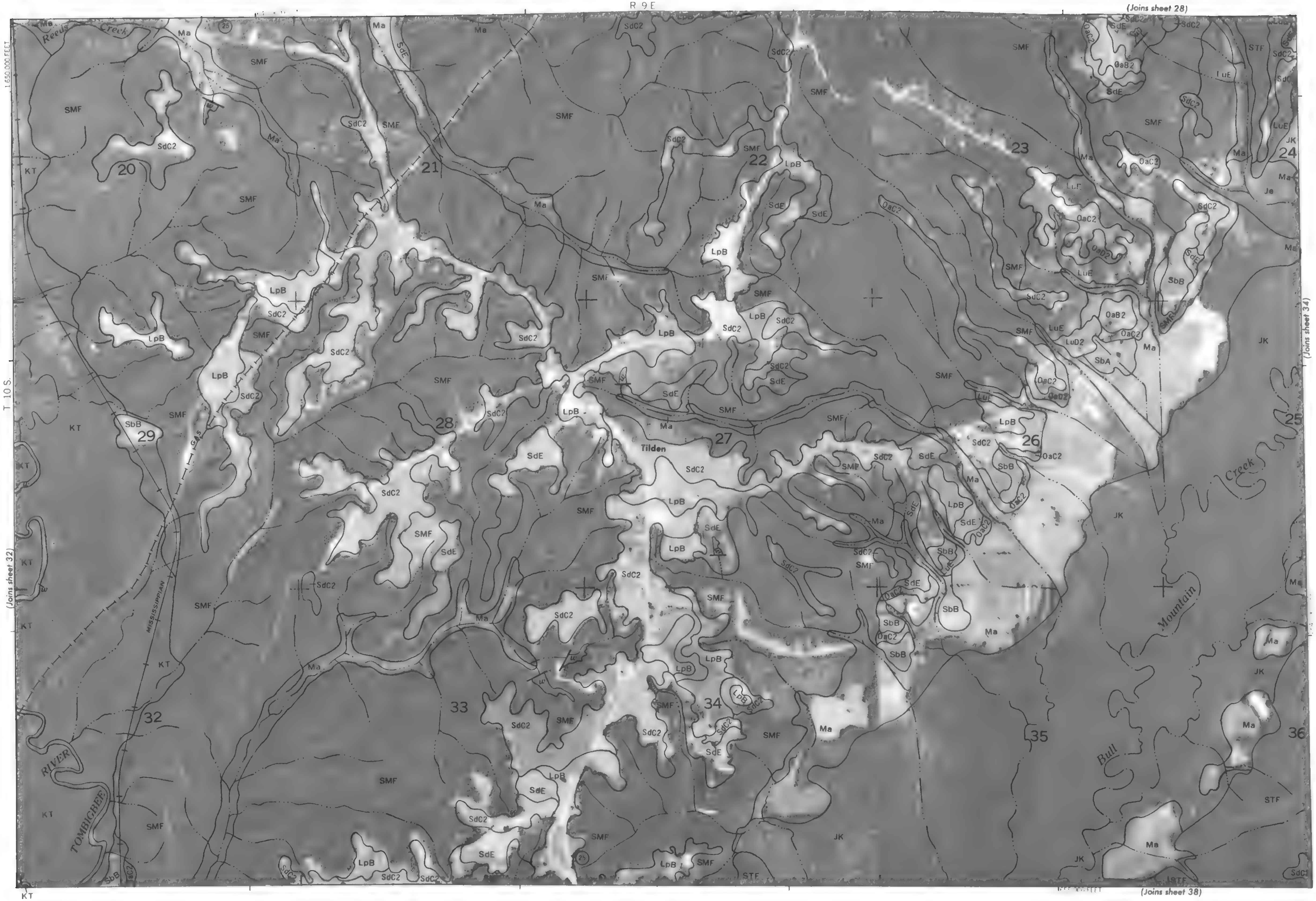
1 Mile — 5000 Feet — 0 — 1000 — 2000 — 3000 — 4000 — 5000

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

(33)

ITAWAMBA COUNTY, MISSISSIPPI NO. 33

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



N

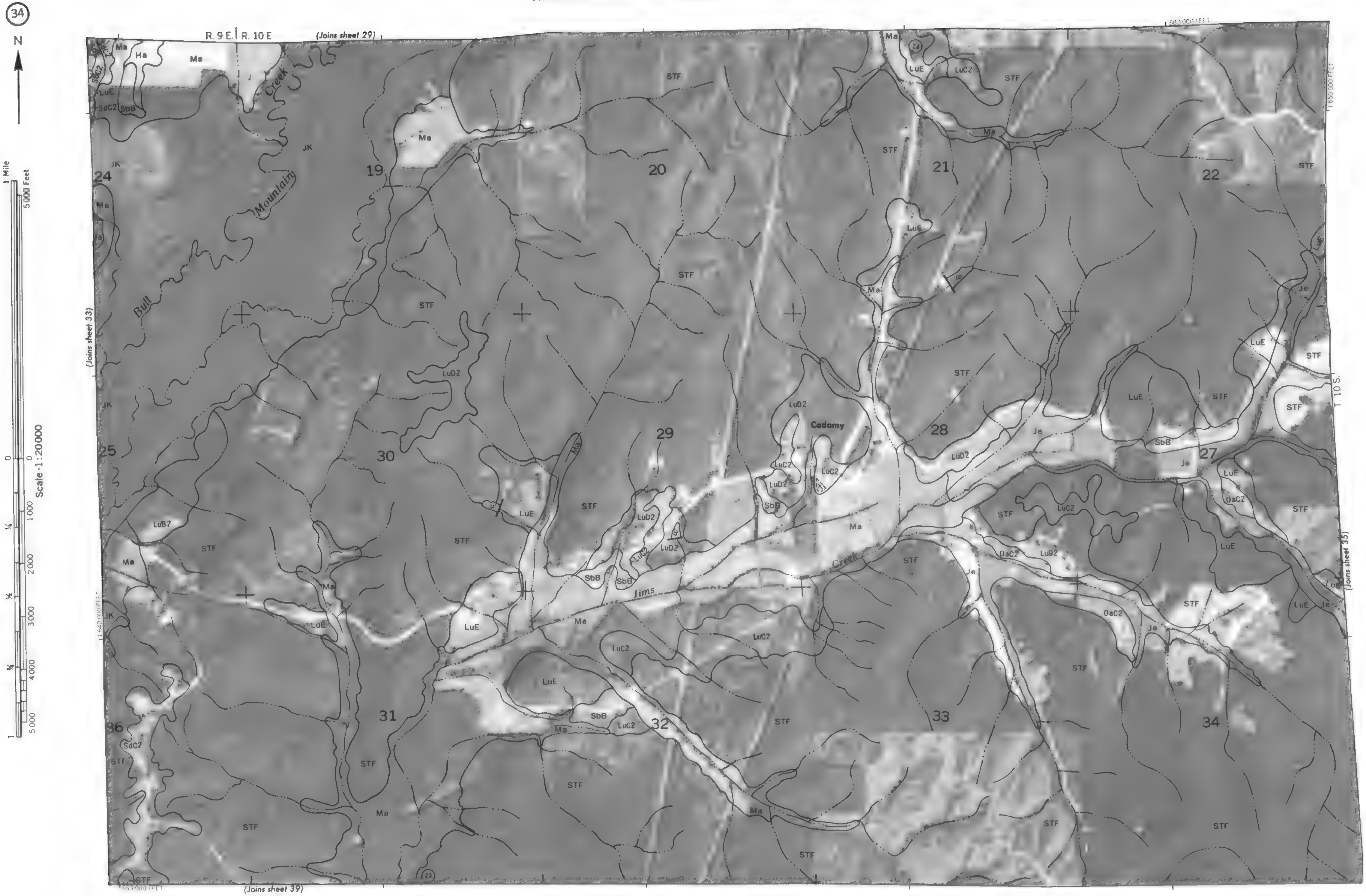
Scale 1:20000

1 Mile

5000 Feet

0 1000 2000 3000 4000 5000

0 ¼ ½ ¾ 1

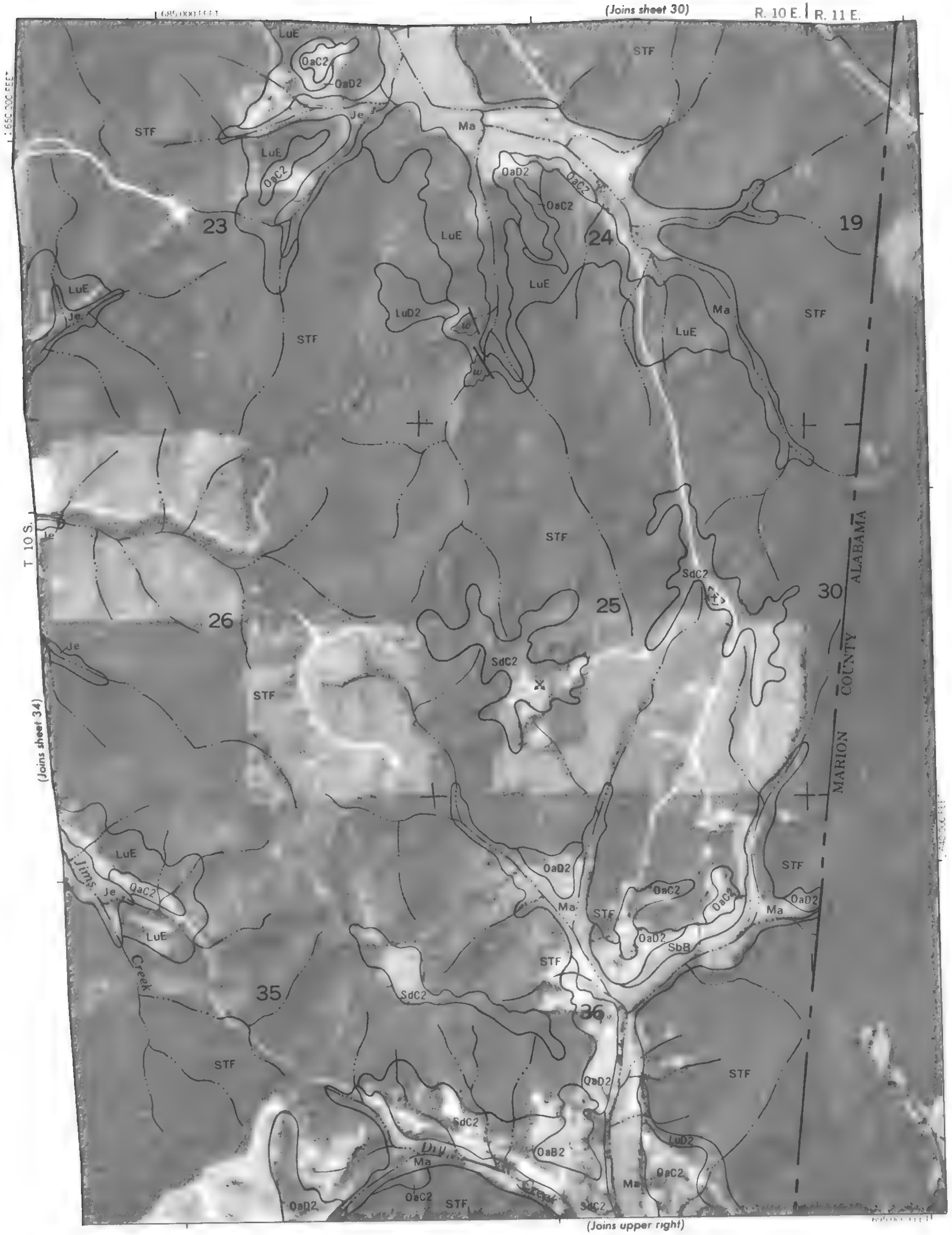


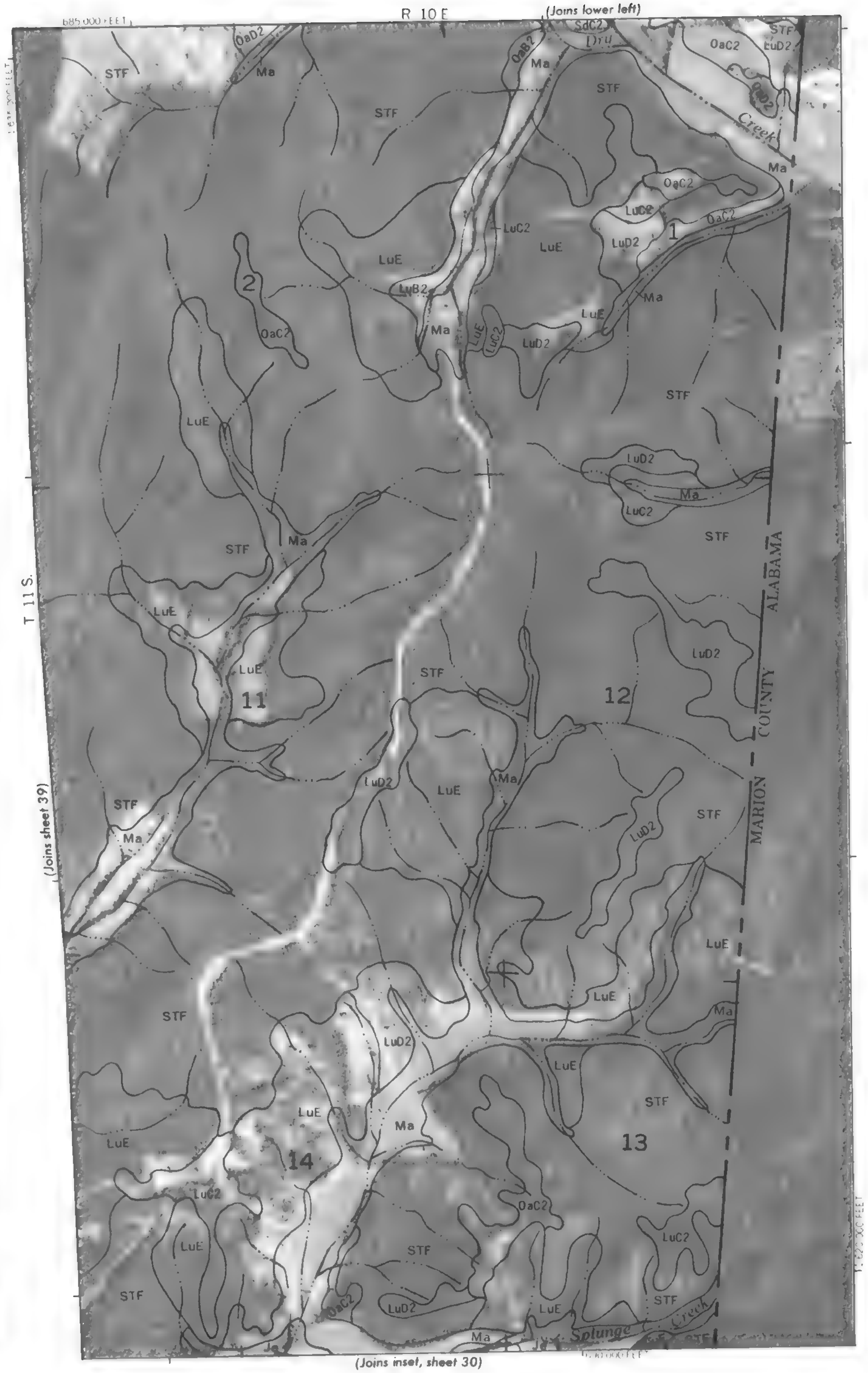
ITAWAMBA COUNTY, MISSISSIPPI NO. 34

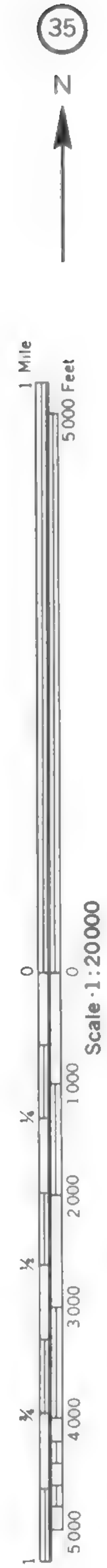
This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

ITAWAMBA COUNTY, MISSISSIPPI NO. 35

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

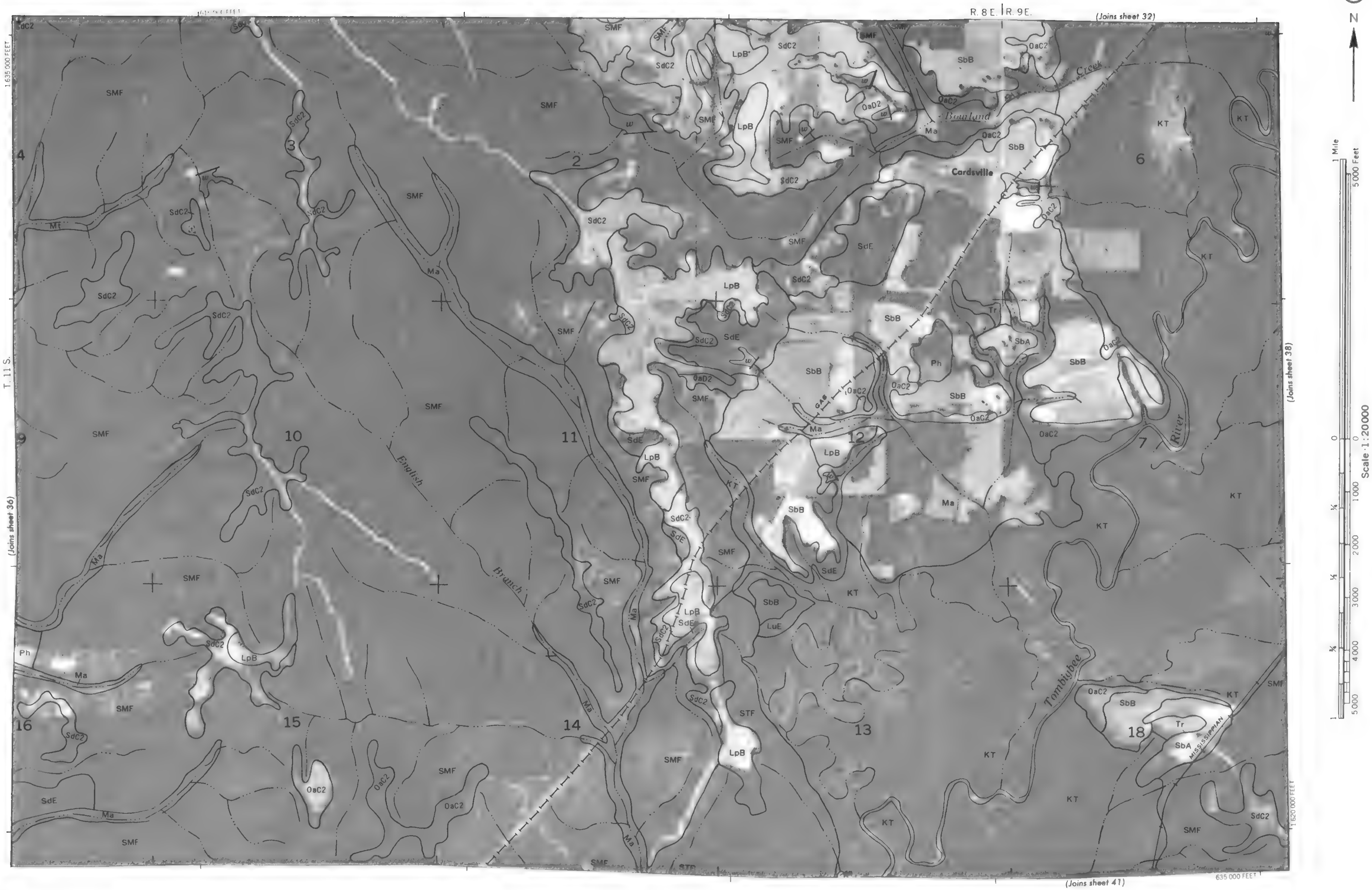




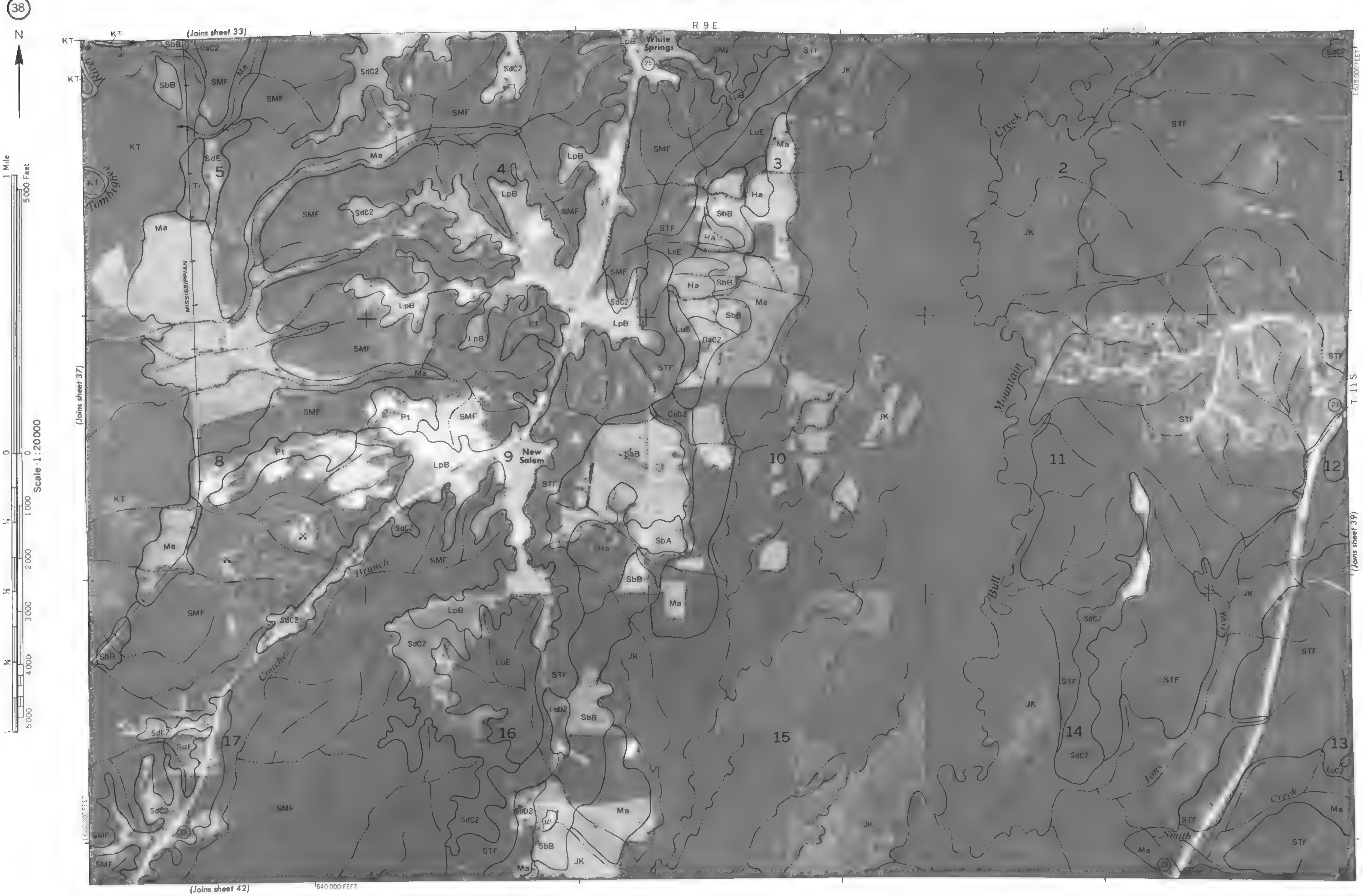


This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

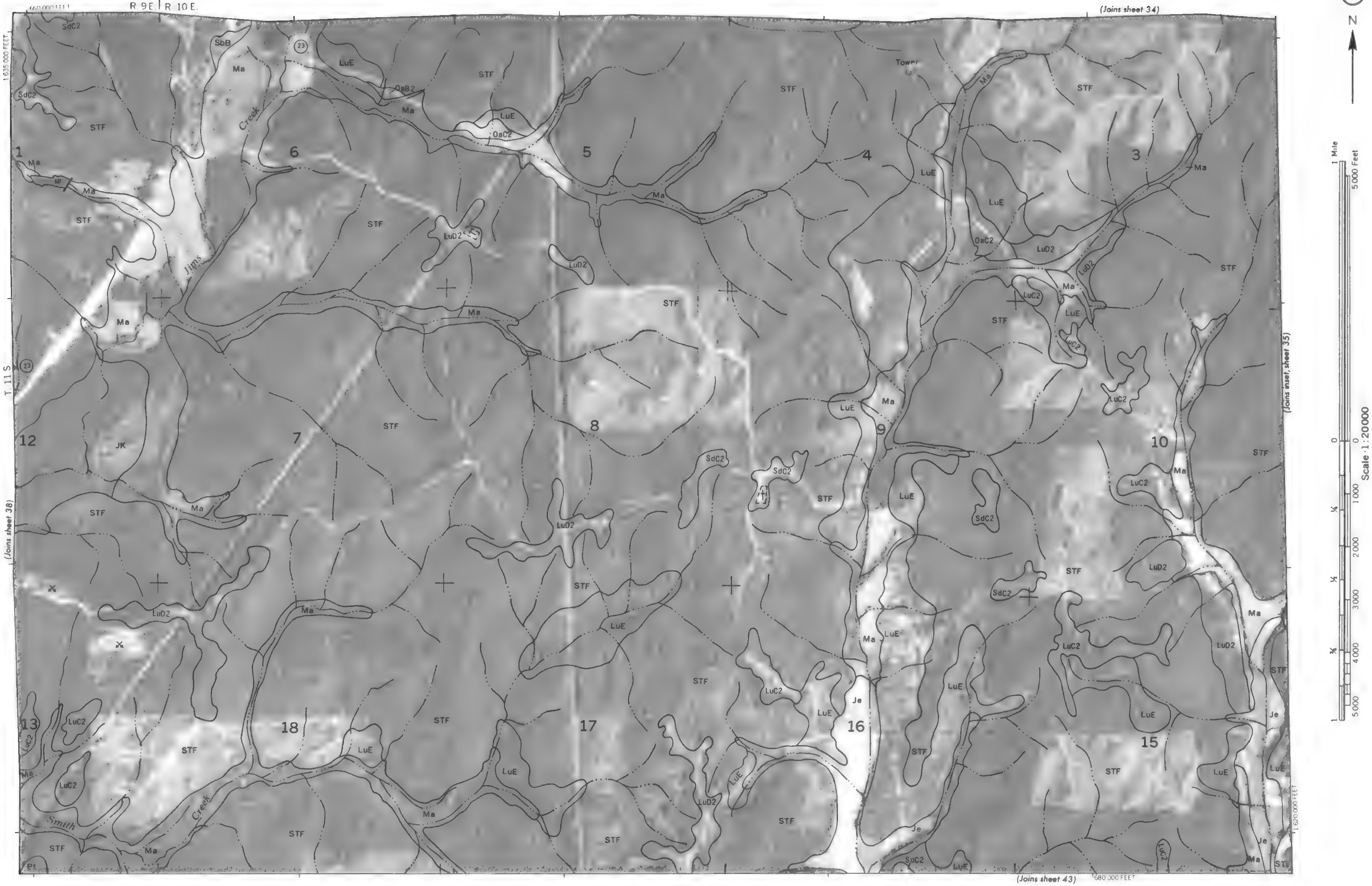
ITAWAMBA COUNTY, MISSISSIPPI NO. 36



ITAWAMBA COUNTY, MISSISSIPPI NO. 37

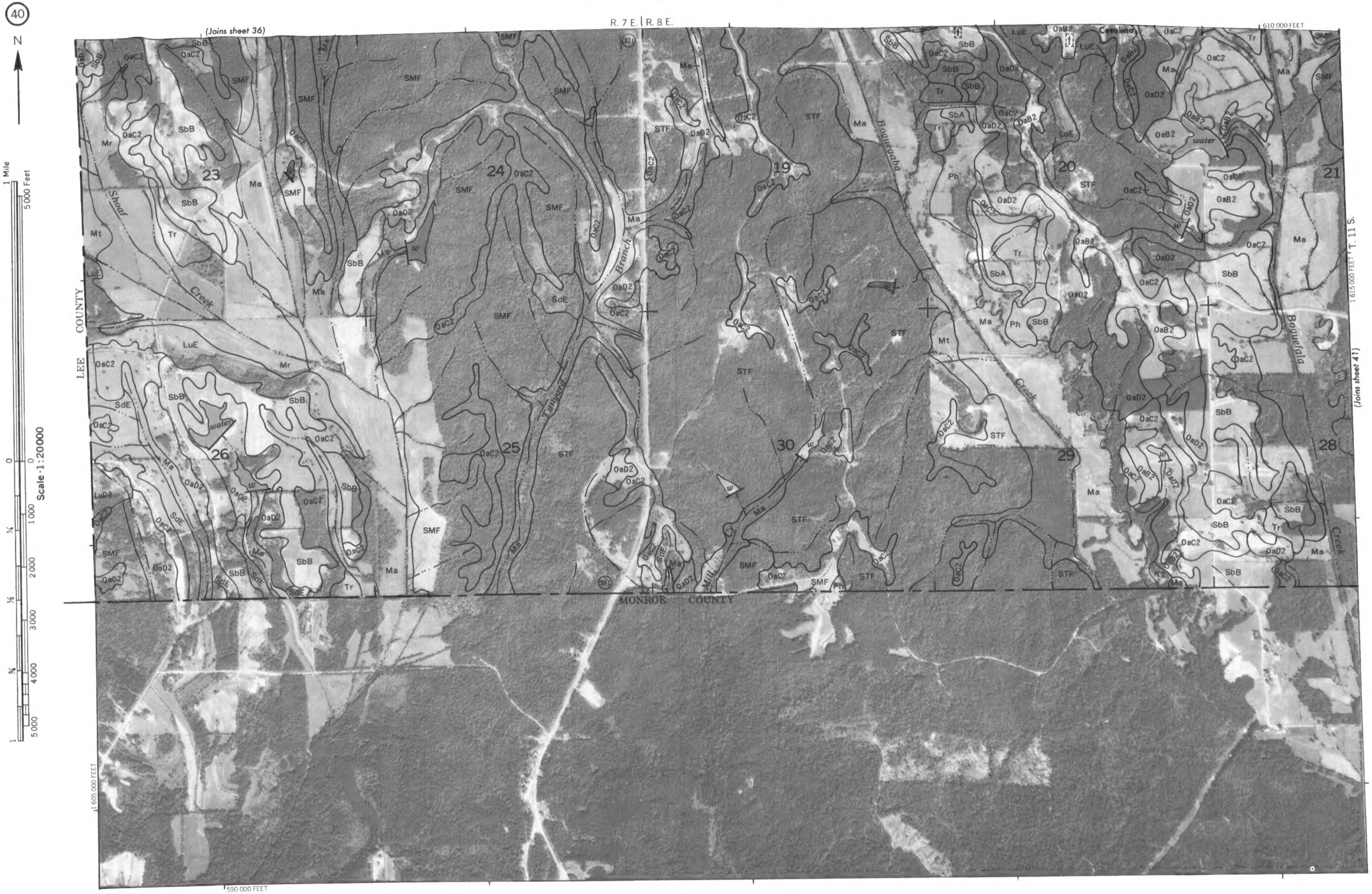


This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

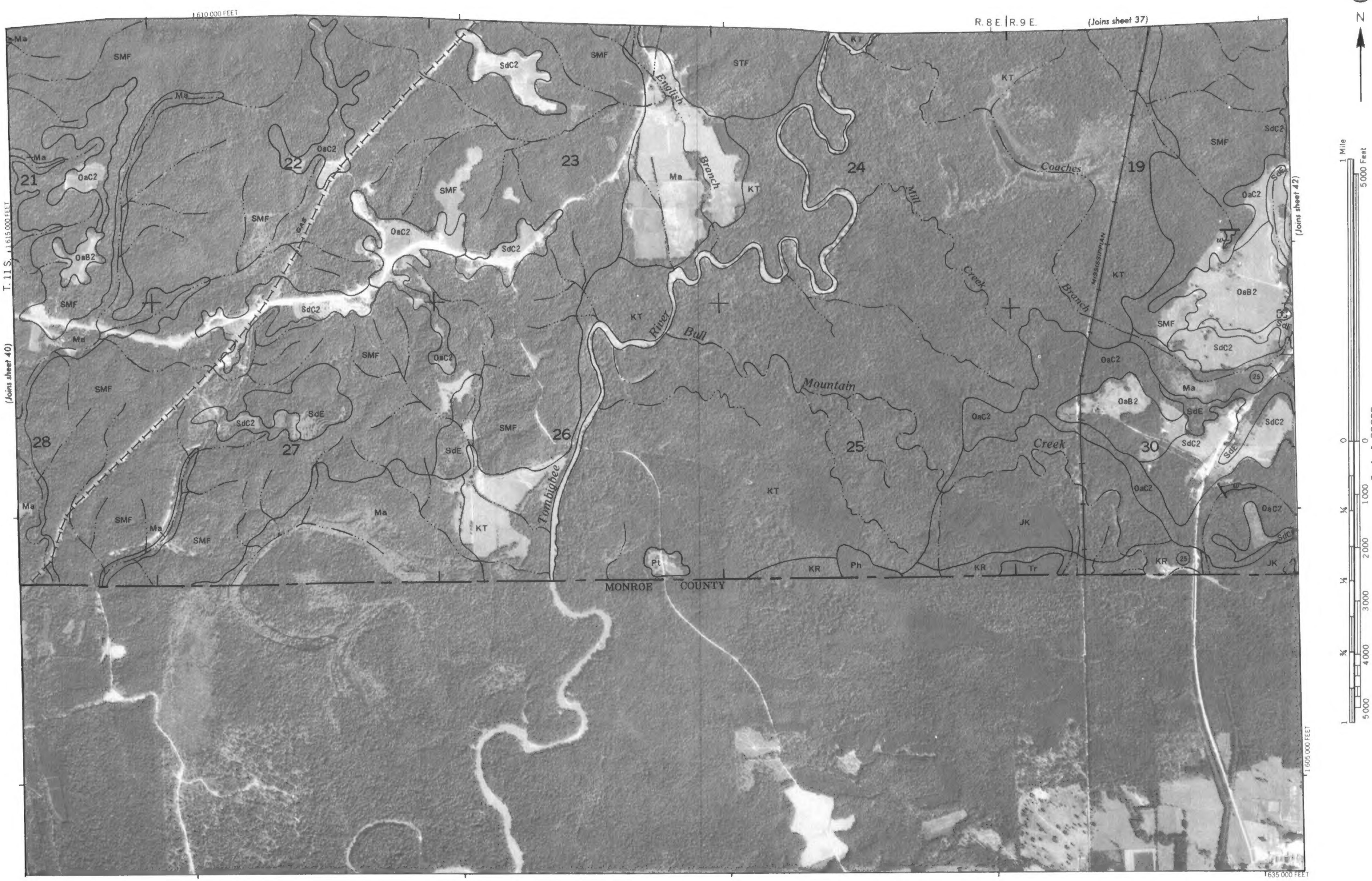


ITAWAMBA COUNTY, MISSISSIPPI NO. 39

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

N

Scale 1:20000

1 Mile

5000 Feet

0 1000 2000 3000 4000 5000

ITAWAMBA COUNTY, MISSISSIPPI NO. 43

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.